ORGAN INSTITUTE QUARTERLY

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ANDOVER MASSACHUSETTS

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ERRATA:

Page 31, table of harmonics of C major chord, second column of harmonics, read

2

c

e_1

g

c^1

Page 59, omission. Below word CONTEST read: *Open to subscribers only. New subscriptions must be for three years to obtain eligibility.*

Under *Second Prize*, paragraph beginning *Bonus Prizes*, third line, read: as outlined above.

ORGAN IN THE BAVOKERK, HAARLEM

ORGAN INSTITUTE SUMMER SESSION

AUGUST 1-20, 1955 ANDOVER, MASSACHUSETTS

IN its eight previous summer sessions the Organ Institute has presented concerts and master classes by such outstanding American organists as E. Power Biggs, Catharine Crozier, Arthur Howes, Robert Noehren, Arthur Poister, Carl Weinrich, and Ernest White; the late Fritz Heitmann, of Berlin, was a member of the faculty in 1950. This year two of America's most distinguished concert artists will be joined by two of the most pre-eminent organists on the continent of Europe.

CATHARINE CROZIER, noted for her performance of contemporary music, and especially that of American composers, will give a concentrated course of instruction in this field. It will include study of *Litanies* and *Dances* by Alain, the *Pentecostal Mass* by Messiaen, the *Sonatas* by Hindemith, the *Symphony* by Sowerby, and such other contemporary works as may be requested by registered students in advance of the session. It has been said of Miss Crozier that her understanding of the various contemporary styles of composition is more complete than that of any other concert organist, and that she almost single-handedly has made the works of certain American organ composers popular with concert audiences. Under her hands contemporary music in the most unfamiliar modern idioms becomes lucidly transparent, and assumes dramatic significance. In her concerts she will play modern compositions of which her interpretations, in concerts and recordings, are justly celebrated.

ARTHUR HOWES, Director of the Organ Institute, although widely known for his Bach recitals, has always insisted upon the study of romantic, in addition to baroque and modern, organ music, and has had long experience both in teaching and playing the nineteenth century's organ classics. In his master classes he will teach, in addition to the Bach *Schübler Chorale Preludes*, the *Fantasia in F minor* (K 608) by Mozart, the *Eleven Chorale Preludes* by Brahms, the *Three Chorales* and *Piece Héroïque* by Franck, and selected movements from *Sonatas* by Mendelssohn, *Symphonies* by Widor and Vierne, as registered students may request in advance of the session. He will also give a course in the essentials of organ design and construction, which will include a summary of observations made during the Organ Institute's tour of European organs in July. He will also present a graded list of teaching materials incorporating compositions of Buxtehude, Pachelbel, Lübeck, Scheidt, Krebs, and other composers whose works have become generally available within recent years.

FINN VIDERO, of Copenhagen, has been widely known throughout Europe for some time, but within the last two years his recordings have earned for him world-wide recognition as one of the greatest modern interpreters of baroque music. He will center his teaching around the music of Buxtehude, whose entire organ works he is now editing and will soon record. He will also teach excerpts from the *Little Organ Book*, and other works of Bach, Pachelbel, their contemporaries and forerunners as registered students may request in advance of the session. His knowledge of the baroque traditions, with respect both to interpretation and registration, is unsurpassed in the world today, and his recordings, convincing evidence of his mature artistry, are among the current best sellers. His rapid rise has been phenomenal, but it is based upon sure foundations of profound musicianship.

Granger to Music 5-24-65

HELMUT WALCHA, the celebrated concert and recording artist of Frankfurt-am-Main, who has refused many previous opportunities to come to the United States, has accepted the Organ Institute's invitation to teach and play in its 1955 Summer Session. Widely known in this country for his Bach recordings, and beloved by those American organists who have been fortunate enough to study under him in Germany, his presence in the United States will undoubtedly bring many of our outstanding Bach scholars and interpreters to Andover. Specializing in the works of Bach, he will teach the *Trio Sonatas*, the *Toccatas* and *Fugues*, the *Great Eighteen Chorale Preludes*, and such other Bach works and compositions of other old masters, as registered students may request in advance of the session.

Individual lessons will be given by Miss Crozier and Mr. Howes. Student requests for lessons from one or the other of these instructors will be granted in so far as possible, but the schedule of master classes and concerts limits the number of lessons that either teacher can give. Students will be assigned to teachers in accordance with their repertoire and other requirements.

The curriculum will be supplemented by special courses in subjects that are of unusual practical value to organists and choir masters. It has been found that much can be accomplished in three weeks of concentrated effort in the two frequently neglected areas of improvisation and voice culture. As in the organ master classes, this instruction has been planned in such a way that students will acquire enough well-organized material for them to profitably utilize in practice through the following year. Both courses will be given in small classes with the maximum of individual attention.

ARTHUR E. HALL, who has achieved national prominence as a composer, having won the Society of Contemporary Music Award, the Organ Institute Composition Prize, and the Houston Symphony Society Award for the season 1954-55, will offer instruction in Keyboard Musicianship and Improvisation. As a preparation for improvisation, the keyboard musicianship work, based upon keyboard familiarity with all keys and scales, will include practice in transposition, harmonization of melodies and basses in all keys, and other practical work intended to equip organists with a full keyboard vocabulary. Improvisation will begin with the extension and development of simple melodies, and progress through combining melodies contrapuntally.

HOMER G. MOWE, one of this country's most distinguished voice teachers, has brought together from his wealth of experience a course dealing with the fundamentals of voice production that is intended to give choral directors the best possible perspective and insight in vocal matters. Class work and individual instruction will make organists familiar with the physical processes of tone production in such a way that their choral directing and instruction to choirs will gain immeasurably.

ARTHUR HOWES, Director of the Organ Institute, and conductor of the Fine Arts String Orchestra, former conductor of the Cecilia Society and Schola Cantorum in Boston, and the Bach Choir of Houston, and who has conducted the Boston Symphony Orchestra, will give a fourteen hour intensive course in the technique of conducting.

The purposes of this course will be two-fold. First, it will equip choir directors with definite and sure knowledge of the fundamental mechanics of conducting, the traditional movements of time beating and signals for attacks, releases, cues, accents, crescendos diminuendos, accelerandos, ritards and fermati. Second, it will attempt to develop in each student a range of expressiveness, a style of conducting that is appropriately indicative of a manner of performance. Methods of conducting various passages of

music which involve all cases and problems will be discussed and assigned for practice.

All courses of instruction given at the Organ Institute are pre-eminently practical and valuable in the production of music. Theoretical considerations are brought into them only in justification of practice. All who have attended the Organ Institute seem to be agreed that the satisfaction which they have derived from it is based upon the consistently practical approach to music, with historical, philosophical and other theoretical considerations playing a supporting, secondary role. It should also be noted that the organ master classes, as well as the supplementary courses, are of value to students at whatever level of advancement they may have previously achieved. Each studies the particular pieces in which he is interested and which are suggested to him, while at the same time he learns from listening to the work of others. All can take notes on class work and apply the principles not only during their practicing and studying at the Organ Institute, but in the succeeding months and years.

In addition to the most valuable experience of playing for faculty criticism in the presence of a class, simply listening to the performance of others and to the comments of the artist instructors, who supplement their comments with full background details from their own research, study and experience, is of the highest value to all serious musicians. While the "seasoning" of performance under fire is to be recommended to all who have prepared any portion of the repertoire, it is nevertheless of almost equal value to be a non-performing member of the class. Whether or not a student registers as a performer or a non-performer may be decided in consultation with the Director.

The detailed analysis of repertoire, methods of practicing, style, and the interrelationship of practical features of organ tone and construction with registration and performance, are invaluable. The basis of the Organ Institute's program is the comparison of the ideas and practices of several different artist instructors.

Lodging and meals will be provided in dormitories and commons of Phillips Academy. Former students have frequently suggested that our announcement should emphasize the fact that these accommodations are pleasant and comfortable, and the meals unusually good. In fact, husbands and wives of organists who have accompanied regularly registered students have in several instances insisted upon returning to the Organ Institute because they enjoyed their vacation here. All points of historic and cultural interest in Boston (twenty-five miles distant), and the historic seaports Salem, Gloucester, Rockport, Newburyport (none more than thirty miles distant), and New England's finest bathing beach at Ipswich, offer unusual attractions to summer visitors. The White Mountains in New Hampshire are but seventy-five miles away; Andover is located close to nearly all points of scenic, historic and cultural interest in northern New England.

Practice facilities will be available for students in schools and churches of Andover, North Andover, Bradford, Haverhill and Lawrence. Many of the practice organs are within walking distance of Phillips Academy, but others are at a greater distance, so that it will be convenient for some students to come to the session in automobiles and use them for transportation to and from various organs that will be used during the session.

Expenses, in addition to a $10.00 registration fee, will be as follows: Organ master classes (40 hours), tuition, concerts, lodging and meals, performer, $175.00; non-performer, $155.00; three private organ lessons (one hour each), $30.00; six, $60.00; six private voice lessons (one-half hour each), $30.00; nine, $45.00; Keyboard Musicianship and Improvisation (16 hours), $30.00; Voice Culture for Choir Masters (16 hours), $30.00; Conducting Technique (14 hours), $25.00; Practice organs (32 hours), $12.50.

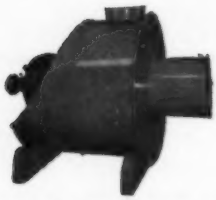
★ ★ ★ EDITORIAL BRIEFS ★ ★ ★

N. LINDSAY NORDEN AGAIN CALLS OUR ATTENTION TO THE DEFECTS IN OUR modern system of tuning, emphasizing the special properties of intervals tuned according to nature, i.e., as found in the harmonic series. Readers will recall Isa McIlwraith's enthusiastic account of her experience in playing the 1630 organ in the Deutches Museum at Munich which is still tuned in an old temperament that provides nearly perfect intonation for chords in some keys. Ernst Flade surmises that Gottfried Silbermann may have rejected Equal Temperament because he could not tolerate the constant out-of-tune effects created by conflict between the altered fifths and thirds of the tempered scale and the naturally tuned quints and tierces of the mixtures and mutations, described as a "hellish noise." Some apologists cite this troublesome matter as the reason for the abandonment of mixtures and mutations during the decadent period.

However this may be, it is certain that organists, along with other keyboardists, have become insensitive to fine differences of pitch. Not being required to set the pitch of the notes they play, as violinists and other instrumentalists must do, organists apparently give little thought to the matter and often fail to develop a refined sense of pitch discrimination. Our deficiency in this respect is compounded when, due to the unfavorable effects on organs of temperature changes, improper location, and inadequate tuning arrangements, we become inured to the harshest and most strident out-of-tune sounds, which are offensive to all other musicians, and to untrained laymen as well. It is significant to note that the criterion by which organ tuning and temperament was judged, according to Daniel Silbermann, was that the layman should not be offended by it, which seems to suggest that organists may have always possessed a more liberal tolerance of bad tuning than other people! Perhaps our musical efforts would be more generally appreciated if we took steps to improve and refine the quality of our offerings in this respect. And we might find that some system providing better consonance than that which Equal Temperament now allows would restore the organ to its former position of pre-eminence among musical instruments.

ERNST FLADE'S BOOK ABOUT GOTTFRIED SILBERMANN ENDS WITH A BRIEF ACCOUNT of the activities of Silbermann's organ building associates and pupils. We have postponed publication of this last installment because of space limitations imposed by our Summer Session announcement and the contest. It will appear in the Spring Issue.

Reflection upon the description of Silbermann's technical practices and procedures contained in the last two installments seems to strengthen the impression that Silbermann's accomplishments entitle him to a unique position in the long history of organ building. Appearing at a time when the full flowering and proliferation of the Renaissance and Baroque periods had already provided the utmost diversity of models and musical virtues, he chose with unerring judgment those elements that could best be combined in a new type of organ that was characterized by greater tonal cohesiveness, superior relationships between stops and divisions, and the most stringent artistic economy: almost every stop was equally useful in solo and ensemble combinations. The earlier Baroque organ was somewhat more of a collection of stops, more or less independently conceived. Its tonal cohesiveness was, as Mr. Phelps has pointed out,



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FORMER ISSUES

Purchasers are seeking former issues of the **Organ Institute Quarterly** to complete library reference files. Winter issues of 1952, 1953, and 1954 are now in short supply. Will readers who are willing to sell their copies please notify the circulation manager, at 104 Salem Street, Andover, Massachusetts?

Organ Institute Quarterly Volume 5, Number 1, Winter 1955.

EDITOR: Arthur Howes

EDITORIAL BOARD: E. Power Biggs, Archibald T. Davison, Rowland W. Dunham, Rudolph Elie, Edward B. Gammons, Ralph Kirkpatrick, Edwin McArthur, Robert Noehren, Wilfrid Pelletier, Arthur Poister, Carl Weinrich, Ernest White.

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(Entered as second class matter at Andover, Massachusetts)

★ ★ EDITORIAL

more the result of circumstances, such as the favorable influence of good acoustics, proper placement and the unifying effect of note-chamber wind chests, in combination, of course, with the good voicing that was prevalent in that era, than of any preconceived design. Silbermann, while retaining those good features of the Baroque organs, planned each stop with reference to every other stop, in such a way that they would each fulfill more diverse functions, whether played alone or in combination. And the relationships between the divisions of a Silbermann organ are such as to create the maximum of interest by contrast and occasional coupling. The scale of the 8′ Principal of the main organ was carefully determined in consideration of the size and acoustic properties of the building and the location of the organ. Then the scale of every other stop in the organ was chosen with reference to the Principal. This ensured certain inter-stop and inter-manual relationships, regardless of the size of the instrument. This contrasts rather markedly with the somewhat hit-or-miss practices of the Baroque era and of more recent times.

Gottfried Silbermann was a master builder in the sense that he first conceived a magnificent plan, and then executed it flawlessly. In this respect, he set a standard to be followed by succeeding generations, including our own.

M. A. VENTE AGAIN GIVES US HIS VIEWS, this time on that most important of all organ building matters, the Art of Voicing. In his broadmindedness and eminent practicallity, as well as his avoidance of dogmatism, we feel that his attitude incorporates true wisdom. We are glad to be able to announce that he will meet us in Holland and accompany us on our visits to organs in that country.

BRIEFS ★ ★ ★

JOHN W. PEIRCE, PROFESSOR OF MUSIC AT Vassar College, gives us a clear perspective of one of the most difficult problems in voice culture, the proper relationships between the registers, based upon his wide knowledge and experience. Within a short two months Professor Peirce has induced astonishing vocal development in a young soprano who is well known to the editor.

ARTHUR HALL CONTINUES TO WIN HONors as a composer. Having won the *Organ Institute* composition prize with his *Toccata*, played for the first time at the 1954 Summer Concerts, he has just been awarded the Houston Symphony Society's award for the 1954-55 season for his *Seven Preludes to the Nativity*, for chorus, orchestra, three soloists and narrator, which was given its first performance on December 3. Widely known for his imagination and skill in improvisation, in this issue he offers a summary of his approach to this art, which he will teach again at our 1955 Summer Session.

THOMAS W. BYERS, WHOSE BREADTH OF vision and accurate thinking are revealed in each organ he builds, each stop he designs, has taken the best way of making the fundamentals of organ construction clear to readers who are not already familiar with them. The first part explains the physical differences between chest mechanisms; the musical differences can only be learned through first hand experience with them.

FRANZ HERRENSCHWAND HAS MADE MANY friends in this country through his delightful series of articles about Swiss organs, which continues in this issue. Some of us will have the pleasure of meeting him in person next July, when he will accompany us on part of our European Organ Tour, during which he will give us interesting accounts of the old organs of which he has made such a thorough study.

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BRIEFS ★ ★ ★

THE TOUR OF EUROPEAN ORGANS WILL probably be booked to capacity well in advance. It is highly desirable, therefore, that all who are planning to join the group should make reservations as early as possible. Those who do make the trip may find themselves

- SEATED, ONE DAY, AT THE ORGAN SHOWN on page 1. Fingers must wander quite actively over its keys in the International Improvisation Contest, which we will attend. It may appear cumbersome to us who are accustomed to push-button luxury consoles, but it does possess one very great virtue. It protects music from the abuse of too frequent changes of registration, and leaves the organist free to think about playing the notes impressively, which, after all, is the most important part of our art.

IT IS UNCOMMON IN OUR DAY, FOR CONcert artists to become well known as composers also. But Robert Noehren likes to be different, and judging by his *Fugue* for organ that Associated has recently added to its excellent catalogue, he will soon be exceptional in this respect, as in so many others.

THE CONTEST, OPEN TO SUBSCRIBERS, BEgins on page 57 of this issue. All items to be identified have been chosen with care from currently available editions of organ music, representing all schools and periods of composition. Extractions from compositions for other media are among the most frequently performed in their respective categories. Good luck to all contestants!

A FEW UNINFORMED PERSONS THINK that the Organ Institute "specializes" in music and organs of a particular period. We only "specialize" in *great* music and *fine* organs of every period. We believe contemporary American organ culture has achieved a high level, and that it is rising higher.

EUROPEAN ORGAN TOUR

Visit Holland, land of dikes, canals, windmills, tulips, and the world's most remarkable collection of beautiful old organs; Denmark, picturesque country of fairytale and legend, whose old and new organs are in the fore-front of the world-wide renaissance of organ building; Germany, the greatest source of our musical traditions, with the fabled Black Forest, the Bavarian Alps and Lake Constance; the Austrian Tyrol and Switzerland, replete with some of the world's most magnificent scenery.

Attend performances of the Haarlem, Holland, Bayreuth and Salzburg Festivals.

See, hear, and play on the celebrated organs of Arp Schnitger and other great baroque builders; play in the churches where Bach and Handel both played for Reinken, and where Bach went to hear Buxtehude; make direct contact with the earliest roots of western music culture.

Establish personal acquaintance with some of the best-known and most distinguished figures in Europe's organ world, including Finn Videro, Helmut Walcha, Jeanne Demmessieux, Henk Badings, M. A. Vente, Hennie Schouten, Franz Herrenschwand, Anton Heiller, Albert de Klerk, organbuilders Flentrop, Verschueren, Marcussen, Frobenius, Steinmeyer, Kemper and Walcker.

The tour will be under the personal direction of Arthur Howes, Director of the Organ Institute. It will leave New York July 4 and return July 28. Trans-Atlantic and certain inter-city continental transportation will be via Swissair. Chartered luxury-type motor coaches, with English-speaking guides, will provide ground transportation everywhere.

The entire over-all cost of the tour, including transportation, lodging, meals, and concert tickets, will be $965. Early reservations are recommended. Arrangements are being made by Esplanade Travel Service in collaboration with Swissair. Additional information and reservations may be obtained from Swissair, 10 West 49th Street, New York City, or

ESPLANADE TRAVEL SERVICE, INC.
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★ ★ ★ BOX 50 ★ ★ ★

ONE of the pleasantest features of our correspondence is the courteous tone of letters from English readers. The surprising number of them who have taken the trouble to write expressing appreciation of the *Quarterly* almost seems to suggest that English organists are more considerate and polite than we are. This is corroborated by the manner in which they express criticisms, too, even when feelings are involved.

For example, one objection to Cecil Clutton's article in our last issue was expressed: "He (Mr. Clutton) is known in England as a racing car enthusiast," and another "He is a noted collector of old clocks," from which we are to infer that the letterwriters do *not* consider him equally well qualified in *all* fields of interest! Englishmen who hold views contrary to Mr. Clutton's naturally regret his appearance in the *Quarterly* as a representative of the English organ profession. We can sympathize with them, because we have sometimes felt the keenest regret over the representations of our own organ culture that have been accepted for publication in English journals. We have confidence in Mr. Clutton's views, however, although we also hope to publish articles by other English authorities; other aspects will undoubtedly be presented in them.

In fairness we must report that admirers of Dr. Harold Darke consider Mr. Clutton's remarks about him to have been exaggerated and unjustified. If this is so, perhaps one of our interested readers will submit an article that explains and justifies English organ building and organ playing in other terms, and from a different point of view.

We do not, as a rule, publish letters to the editor, but Ralph Downes was once one of us here and has since attained great eminence in England, and the new Royal Festival Hall Organ is of real interest to us. We shall therefore make an exception of his letter about it, which we publish herewith, in its entirety:

> I do not make a practice of replying to criticisms of my work or viewpoint, but I do feel justified in commenting on two remarks made by Mr. Cecil Clutton about the Royal Festival Hall organ, in his article on English Organ Building in your last issue: because otherwise, in view of the great interest many of your readers have taken in the evolution of this instrument, it could happen that those remarks proved to be misleading.
>
> It is not quite the truth to describe the tone of French-type reeds of this organ as "tearing." Some of your readers may know of the many wild rumours which have been spread on the subject of these reeds and their origin, and it is surely undesirable that such fictions should be kept alive. It is true that since the tongues are nearly all unweighted, the basses of the chorus reeds have a trumpet-like quality quite unlike what generally goes by such a name in England, (which is more like overloud bassoon quality, with a rather low harmonic development, in the bass at any rate). But in the upper portions, this difference is very considerably reduced. The shallots of all the reeds, though of French pattern, were nevertheless specially designed to give less tonal output and rounder quality than is usual in the reeds found in large French organs. For a concert organ, this procedure was imperative. The reeds do not in any sense dominate the ensemble, moreover, in the way that all English reeds of the last forty years inevitably do.

Many people have confused the effect of some of the upperwork (containing the tierce) with a reedy snarl — but that is a very different matter.

Mr. Clutton's second remark that we can make good low-pressure reeds here, prompts me to observe how easy it is to be wise after the event. Detailed plans for the R.F.H. organ began to take shape in the fall of 1948. I personally cannot recall a single example of a low-pressure reed chorus, produced by a reputable firm in England, during the twenty years previous to that date, or even individual low-pressure chorus reeds which I personally could regard as musically satisfactory. Whether such reeds *could* have been made, I will not dispute: but whatever may have been done *since* 1948, the fact remains that our leading organ builders were, to say the least, extremely sceptical at that time, about the practicality or even the desirability of reed voicing of this kind in a modern organ.

Sincerely,

Ralph Downes.

We know Mr. Downes to be well informed in organ matters and also a concert organist of outstanding attainments. Our admiration for him is renewed and increased because of his vision, knowledge, and courage in bringing into existence the new Royal Festival Hall Organ, which must be one of the finest, if not the finest, in England.

Mr. G. J. Cooper, distinguished editor of the *Organ Club News* of London, reports having been disturbed by our picture of the organ with pipes made of beer cans. The journal of which he is editor is mimeographed, and contains a balanced combination of interesting items and news of events for members. He commented "The printing process is expensive; let's see it used for a worthy purpose." This brings up an interesting point: humor is to us, of the essence, but there is some evidence that it may not be so with our English cousins. In fact, they seem to be over-pompous at times. Witness their custom of always referring to all officers of anything as "Hon. Vice President," "Hon. Secretary," "Hon. Verger," "Hon. Sexton," et cetera. As an Hon. reader remarked, "It must be a career in itself just to be an Hon. Englishman."

However on this side of the Atlantic, too, there have been objections to our efforts to leaven the lump, notably the Photographic Essay *Evolutionary Types*, in the Spring, 1952 issue, and the picture of George Luhrmann playing the Bach F minor Prelude and Fugue for his pet boa constrictor, nine feet long, coiled on top of the organ console. Several subscriptions were cancelled. But others have expressed appreciation of the "scholarly approach" of this magazine. Frankly, we would prefer to avoid being considered too scholarly! Constant dwelling in esoteric realms involves some danger of losing the "common touch" that is a *sine qua non* for all professional musicians. Let's not take ourselves too seriously!

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JOHN W. PEIRCE

VOICE REGISTRATION

I THINK it can be safely said that the objective of both organ and voice registration is virtually identical. Both are employed to impart to the performance of music an effective tone color variation. The organist reaches his objective through the use of stops, the swell pedal and other mechanical devices; and the singer, through muscular control of breath pressure, and of laryngeal and vocal cord action.

The teaching of organ registration is a far more complex business than that of instructing a voice student in the use of his vocal registration because of the almost infinite number of combinations available to the organ player. On the other hand, if the singer is able to master the proper functioning of his own voice registers, he will have at his command an amazing range of dynamics and of emotional intensity.

The problem of how to co-ordinate the registers, or the so-called head and chest tones of the human voice, has been confronting singers and teachers of singing for hundreds of years, and even today there is violent disagreement among singing instructors as to how these registers should be dealt with. Many teachers still try to prevent their pupils from singing lower register tones, and yet all really great singers resort to them when they increase the intensity of a tone beyond a certain limit, or when they sing a loud tone below the middle C of the piano. I have studied voice registration and experimented with it for many years and I have taught it to hundreds of students. From this experience I have concluded that the customary and conventional approaches to the teaching of singing, while they may not be wrong as far as they go, do not go far enough. They should be adjusted to facts which have been proved by scientific research. This research cannot be dismissed with a shrug of the shoulders, but a large number of voice teachers do not trust the evidence laid before them and doubt the efficacy of separate register development. So did I at first, but not now, after the many years I have devoted to this type of teaching. In my case, results have been generally excellent, even when it involves those students, who, because of a crowded college schedule, have been unable to realize their full potential vocally.

I believe that there are but two registers in the voice. Some people seem to think that there are more than two, but what they sometimes call a middle register, for instance, is a co-ordination or a mixture of the two registers. The two registers, as far as I can discover from study and experimentation, are caused by the preponderance of effort of one set of muscles over another. They are found in their purest form at the extreme ends of the voice. The natural break between them takes place in both the male and female voice at approximately the pitch of the middle C of the piano. The lower register, which is apparently controlled by the cricothyroid tensor muscle, can be carried quite high in pitch, if the tone is sung loudly and intensely all the way, without adding the upper register quality to it at all. Witness to this is the female singer of popular songs. The upper register, which at first should be sung at a high pitch in order to avoid mixing it with the lower register, can be brought down the scale fairly low if the intensity of the tone is decreased as it is brought down. This register is controlled by the arytenoid tensor muscles. All lightly-sung tones are of upper-register quality and all loud and intense tones, except at the top of the vocal range, are of the lower register quality, or of the quality which results from the combining of the two registers.

In my opinion, each register must be separately developed, in order that the muscles controlling their action may be strengthened and a well-balanced co-ordination effected. Through daily practice the singer can extend his lower register higher and higher in pitch. He must start low enough, however, to be sure he is using the pure quality of that register. Three- or five-note major scales, which I recommend, must be sung back and forth a number of times in succession, with a crescendo to the top note of the scale each time it is sung. For women's voices the short scales should commence on the G below middle C, and possibly lower, and the vowels, O, Ah and Aw should be used at the beginning. Other vowels can supplement this list as facility in manipulating the lower register is gained. The scales can be progressively moved upward by half-steps as the register becomes stronger. Short arpeggios of three notes (the major triad) can be employed just as adequately as the short scales. In fact, sometimes the singer can control them better than he can the scales. As singing dexterity improves, octave-, two-octave and three-octave scales, and four-note arpeggios can be used also.

As I have mentioned earlier, practice with the upper register must be started high enough to avoid lower register interference. It can be sung fairly low in pitch if care is taken not to add lower register quality to it. The overlapping development of the registers should bring about a final co-ordination, satisfactory to both teacher and pupil.

All vowels can be phonated as high as the second G or A flat above middle C, but it is physically impossible to sing E (as in meet) or O (as in pool) above that point without distortion. Ah (as in father) is the only vowel which can be sung on the extremely high notes above high C.

I have found that the range of practically all voices is about three octaves, and sometimes more. Sopranos can sing from about the G below middle C to the third G above middle C; altos and mezzo-sopranos from the E flat below middle C to the E flat above high C. Tenors and basses are, of course, an octave lower than their female counterparts, but their voice range is similar. This wide range can be developed very rapidly in some voices, more slowly in others. Each voice is characterized by an individual quality, although I have never detected more than two registers in any voice, at any time.

Voice teachers may think that they can prevent their pupils from using the lower register by discouraging them from singing it, but the fact of the matter is, no crescendo of any importance can be made at any pitch, except at the very top of the voice, without bringing in the lower register to "back it up," so to speak. Many teachers do not like to have their students even work on low notes of the lower register for fear that such stress on them will thicken the quality of the upper tones of the voice, or because they dislike its quality when it is first sung. The fear of the former is baseless if careful attention is given to vowel enunciation. Distaste for its originally harsh and strident quality can be easily banished by deepening the tone on each note up to the place where it begins to combine forces with the upper register. The three-octave scale I have mentioned should start at the bottom of the voice range, utilizing the pure lower register quality. As the singer progresses up to about middle C, the upper register quality is gradually added to the tone. From there on up to the top of the voice range the upper register becomes increasingly predominant until finally its pure quality is attained.

The principal resonating spaces in the body and head for low-pitched sounds are the bronchial tubes, trachea and pharynx. As the pitch of the tone is raised the bronchial tubes and trachea gradually cease to act as resonators. The middle tones of the voice are chiefly resonated by the oro- and naso-pharynx. For the top notes of the voice the oro-pharynx, directly behind the mouth, is the principal resonator. Any tone can be deepened

and mellowed by lowering the larynx to a moderate yawn position and by holding it quite rigidly to that position for the singing of any vowel. By doing this, an evenness of quality for a series of vowels at one pitch or for one vowel at a succession of pitches, can be obtained. The larynx must never be lowered so much that a throaty quality of tone will ensue, or that the clear emission of vowels will be interfered with.

I employ very simple exercises for building the strength of the muscles controlling the registers and the vocal cord action, as I have stated above. I request my student to devote a period of time *each* day to these exercises because regularity of practice, even in small doses, is preferable to fitful efforts, in constructing a dependable muscular support for all tones. The exercises must always be sung vigorously and, at first, for only short periods of time.

It seems to me that the important things to keep in mind are these: (1) All vocalists must be able to sing a strong and firm tone through the entire compass of the voice so that they will have at their command a dynamic intensity ranging from fortissimo to pianissimo; (2) all vowels must be clearly enunciated at any pitch where it is physically possible to sing them; (3) the proper resonating of tone occurs only after the two registers have been correctly co-ordinated and the laryngeal position accurately established.

In the preceding paragraphs I have considered rather too briefly, I am afraid, some of the problems of voice registration which mainly concern the individual singing voice. As a consequence of this emphasis, the readers of my commentary who are for the most part organists and choir directors, will immediately ask what they can do to apply the principles of register co-ordination to chorus choir singing. I shall have to admit that this is a question that any expert voice teacher will hesitate to answer if he knows anything about the usual volunteer church choir. It is pretty much a hit-or-miss affair in many churches, and if the choir master is fortunate enough to have a fairly well-balanced group of singers it is generally the result of being able to pay the chorus or of living in a large community where a careful selection of singers is possible.

There are some suggestions which may be helpful, however, and I hereby offer them for what they are worth. First, the choir director himself should learn how to sing, no matter how poorly equipped vocally he may deem himself to be. In the hands of a good teacher he can accomplish a great deal. He will learn how important breath pressure is, when supported by muscular action from the center of the body, to the rise and fall in intensity of tone production. Also, he will become acquainted with other ingredients of good singing which contribute so much to an expressive choral performance.

Every choral director should pay a great deal of attention to the development of a strong and resonant falsetto in all the men's voices of his chorus. Otherwise they are inclined to shout or yell their high notes in the lower register quality. Both sopranos and altos should be taught how to sing both lower and upper register tones, and all members should receive considerable instruction in enunciating vowels and consonants, in obtaining dynamic effects and in phrasing well.

One of the most common defects of choral singing is faulty intonation, which, in the main, comes from flatting the pitch. This flatting happens mostly between middle C and the C an octave higher, and is caused, I believe, by the influence of the untrained lower register. When the singer exerts too much pressure on a tone the unbalanced heaviness or weight of the lower register pulls the tone flat. Pitch sharping is not nearly so common as flatting and is caused by forcing high notes out of control.

Although there is much more that could be said, I shall bring this article to an end, hoping that what I have written will be of some value to those who read it.

★ ★ ★ A MATTER OF RECORDS ★ ★ ★

THOMAS P. FROST

A READER has provocatively inquired about an apparent defect in high fidelity phonographs: why do they seem to lose their distinctive qualities when played quietly? The fault lies not in the phonograph, but in the human ear. It is known that the ear is less sensitive to sounds near the extremes of its response (very low bass or super-acute treble) than to sounds in the mid-range. The most sensitive response is in the vicinity of two to five thousand cycles, or about the highest octave of a 4′ stop.

When a phonograph is run very quietly, sounds at the extreme pitches which would normally be audible become too faint for perception and are lost. Sounds at less extreme pitches fall so close to the limit of audibility as to become insignificant. The remaining mid-frequency sounds monopolize the attention. As the phonograph is played more quietly, then, the ear hears proportionately less of the pitches to which it is least sensitive, and more of the pitches to which it is more sensitive. This upsets the normal balance of the sound. The frequency components which disappear are precisely the extremes which only a good phonograph can produce. Hence, part of the advantage of a fine system may be lost if it is not played at a normal loudness.

A device called a "loudness control" may be used to overcome this effect. It takes the place of the volume control, and increases the proportion of extreme treble and bass as the overall volume is reduced. By this means, the ear can be made to hear a quiet playing with the normal balance associated with natural loudness.

There is a further effect, not so widely cited, which also leads to apparent deterioration of quality in playing at subnormal loudness. We do possess some sense of absolute loudness of sounds, even though it is not really accurate. A loud musical sound is likely to be perceived in part by the feet, through vibrations in the floor, and in part by the chest, which will vibrate in response to unusually powerful sound waves, in addition to the normal detection by the ears. If a loudspeaker or any sound-producing apparatus causes such responses, we feel instinctively that the sound is powerful, and it may seem weak if no such effect occurs. (It is possible to arrange a loudspeaker to excite vibrations in the floor and take advantage of this, but the idea seems to have been little explored.)

We may be overawed by an approaching locomotive, but never by a toy-sized scale model, no matter how perfect a replica. Music, to be properly impressive, cannot be reduced in "size" to a minute loudness.

Another fascinating matter was touched upon by the same reader: how is it possible to give the illusion of a symphony orchestra in the livingroom? In actuality this is normally impossble, and perhaps not really desirable. For years, phonograph recording struggled along the assumption that this was just what was desired. Great artists by the score were herded into padded cells for recording sessions. The dead recording studio was considered necessary to duplicate the acoustic properties of the average livingroom. The attempt was to make the musicians appear to be "in the room," although technical factors such as the limited frequency range then possible precluded any complete success.

Today the best practice is quite opposed to this philosophy, and instead a good deal of studio reverberation is admitted into the recording. The aim is no longer to bring the performers into the room, but to open a window into the concert hall. The consensus is

that this results in much more pleasing listening than the old procedure — as well as reducing the strain on the performers, no longer confined to their padded cells!

It is possible to make the musical illusion even more complete than that of listening through an open window. Considerable experimentation has been conducted to discover the best ways of doing this. One method, which has attracted considerable attention, is the so-called "binaural" two-channel recording, in which two records are made, simultaneously, by microphones located side by side. It requires duplication of the loudspeakers, amplifiers, preamplifiers, et cetera, as well as twice the record surface area. "Binaural" sound can produce an impressive spatial segregation of the instruments from side to side, towards one loudspeaker or the other. It is doubtful whether whatever is gained is worth the trouble, and particularly so in the case of organ music.

It is unnatural to hear music emanating from so restricted an area as the front of a loudspeaker. Most musical sound sources are many times this size, often extending over a considerable angle in front of the listener. "Binaural" sound, with its two speakers, offers the advantage of an increase in width of the sound source.

There are other ways of enlarging the effective sound source. The simplest is to turn the loudspeaker so that it faces a wall or ceiling obliquely, with the sound being reflected to the listener from a considerable area. Another is by the use of two or more speakers. If this is done, best results will ordinarily be obtained when the speakers are close together. Speakers separated by an appreciable distance may be discerned individually, unless special precautions are taken to make one speaker the principal sound-source, and the other secondary.

Such an arrangement, with three speakers, one sounding much the loudest, and two filling in, is now used by the writer. It is found to create the very pleasing aural illusion that the whole side of the room has opened onto a concert hall or church.

In a review last issue, Videro's ability to "create organ accent without breaking the legato" was mentioned. A reader has written to inquire what we are talking about. The following answer may be of general interest. The accent which is meant is the *duration* or *agogic* accent, a slight lengthening of the accented note. The time may be "stolen" from the following note, and the process accomplished without destroying either the legato or the time sense. Consider as an example a dozen eighth notes, played legato with precise uniformity upon an organ. It will be evident that no rhythmic pattern is established. If, instead, every fourth note is permitted a slight added duration, a rhythmic movement is set up; or if every third note, a different rhythm is created. The organ is perfectly capable of responding to accent in this manner, even though in musical performance the treatment will normally be subtle. For a more thorough treatment of this important subject, and an imposing array of sources from Quantz to Clerambault, refer to the excellent article by Gilman Chase in the *Quarterly*, Vol. 4, No. 1.

An international collection of fine records, Danish, French, Dutch, German, and American, is at hand for review. To these we now turn with great delight.

J. S. BACH, "Orgelbüchlein" (complete). FINN VIDERO, organ. HAYDN SOCIETY HSL-D 2 12″ LP.

An excellent performance of a major masterpiece of the organ literature, this is likely to stand as the definitive recording of the "Orgelbüchlein." In every attribute, it merits a "well-done," and every praise accorded Videro's previous efforts deserves to be reapplied here. The highly competent, lovingly defined performances expected of Videro are rendered in full measure on the three-manual Marcussen tracker organ at Soro.

Technically, like the previous releases of the same artist by the Haydn Society, the recording is of excellent quality. The pre-war Biggs recording having been long out of print, we are much indebted to the Haydn Society for making this great music again available on records.

Surely no comment on the music itself is called for here. Each chorale movement is unified in mood and requires no change in registration, tempo, or dynamics; and the spirit of each is derived from the text of the chorale. In these performances, every chorale receives an individual treatment. The registrations, which are listed in complete detail, show that with but a single exception, no two chorales are registrated alike.

Of the many favorites in this collection, perhaps at the forefront are the coloratura setting of "O Mensch, bewein dein' Sünde gross" and the brilliant chorale fantasia "In dir ist Freude." For any who have permitted such favorites to overshadow other fine settings, this recording can be the guide to the entire collection.

Used as a reference, as a master class demonstration-lecture on the interpretation of the "Orgelbüchlein" chorale preludes, these records should be of real value to the organist who is conscientious in his art. The key to Bach's lifework is his organ works; the key to the organ works is the chorales; and here is a key to the chorales!

J. S. BACH, Concerto in A minor after Vivaldi, BWV 593; Chorale Preludes "Erbarm' dich mein, O Herr Gott," BWV 721, "In Dulci Jubilo," BWV 729; Canzone in D minor, BWV 588; Aria in F major after Couperin, BWV 587; Prelude and Fugue in C minor, BWV 549; Trio in D minor, BWV 583; Prelude and Fugue in G major, BWV 550; Trio in C minor, BWV 585. MARIE-CLAIRE ALAIN, organ. HAYDN SOCIETY HSL-104 12″ LP. $5.95.

The Leipzig Kapellmeister exchanges his peruke for a beret in this record, and his Schnitger for a Clicquot, with intriguing results. The performer, new to this reviewer, displays careful phrasing, rhythm generally fluent (except for a few surprising halts at manual changes), and technique obviously adequate. The interpretations appear fussy in matters of variation in rhythm and changes in registration. They express a very Gallic conception of the music, a flamboyant and ecstatic baroque. We might almost be peering over the shoulder of a Couperin as he examines manuscripts newly arrived from Weimar.

Alain does not entirely follow the French traditions in registration as we understand them from Dom Bédos. The *anches* were never added to the plein-jeu, yet Alain frequently throws on Trompettes with full flue ensembles. Furthermore, they are drawn and retired during the course of various movements — a curious effect which, as in the Vivaldi, is not invariably appropriate.

The four-manual tracker organ at St. Merry, Paris, on which the present record is played, dates to 1647. Notable among its rebuildings are those by Clicquot in 1781, Cavaillé-Coll in 1855, and the Gonzales restoration of 1943-47. The last organist to play the instrument as Clicquot left it was Saint-Säens.

Many tonal features of especial interest are evident in the record. The *plein-jeu* exemplifies a balanced hegemony such that no single pitch is obstrusive. The effect is of great richness but moderate power, with many ranks of upperwork infusing the unison with a fresh brightness. Aggressiveness is left entirely to the chorus reeds, whose cataclysmic blare quite eclipses the mild mixtures. In this music the Trompettes are used climactically, never through complete movements. Considered as a whole, the registrations illustrate the dependence of French baroque interpretations upon the reeds and

cornets, one or both being represented in every composition.

The Cromorne and Vox Humana (untremulated, of course) are heard to good advantage in the "Erbarm' dich," as is the not inconsiderable action noise. The recording of "In dulci jubilo" proves that the *anches* badly need a visit from the tuner, substantiating in part the wild tales which have circulated concerning the typical condition of organs in France.

Technically the recording is very satisfactory, as is usual in Haydn Society records. It is the best we have yet heard of any French organ.

The program, made up chiefly of early compositions, is most capably annotated in Karl Geiringer's commentary. The first three pieces have been previously recorded, but the remaining six are new on LP. The disc with its strong Gallic bias is a welcome addition to the recorded literature.

J. S. BACH, Passacaglia in C minor; "Jesu, Joy of Man's Desiring," (Cantata No. 147); Toccata, Adagio and Fugue in C major. C. F. HANDEL, Basso Ostinato (Concerto in G minor, Op. 7, No. 5). FEIKE ASMA, organ. EPIC LC 3025, 12" LP. $5.95.

Two magnificent seventeenth-century organs, acclaimed the finest in Holland, are heard in this new record. That of the Old Church, Amsterdam, is reportedly one of the best preserved in Europe. Built in 1724-26 by Vatter of Hanover, and enlarged in 1739 by Christiaan Müller, it boasts fifty-five stops, of which only six are by later builders. The recorded sound in the Passacaglia demonstrates many of the virtues of the organ: the warmly colorful effects of its foundation stops and small ensembles; the silver sheen cast by the light mixtures, and the great richness of the massed mixtures; the new intensity added by the chorus reeds to the whole.

The acoustics of the edifice are extremely reverberant, and the microphone placement for the recording was evidently quite distant, creating a remarkably spacious effect at the cost of detail in the tone. The recorded sound is clear, and the recording would be technically superior, save for the barbaric hand which has crudely suppressed the volume at several points of climax.

The Passacaglia is confined to moderate stops until the first appearance of the theme in the soprano (variation 11), where it is soloed on a bright cornet. The next variation is still bigger, followed by three which become progressively lighter, until variation 15 has but one bright gedeckt. (Here a couple of notes accidentally added to the score prove that the player is human!) At variation 17 the upperwork of the Hoofdwerk is added, and at 18 the pedal reeds. At several points the tempo jumps ahead, creating a superficial excitement at the expense of the poise which should prevail.

The Fugue commences without a break, on a very full combination with much upperwork, including tierces. A highly detached touch is much used, particularly for the rocking countersubject. The second manual ensemble, to which the episodes retire, is well-contrasted, a little lighter and tierce-less. The pedal reeds are drawn through most of the Fugue, and altogether an avalanche of tone is lossed. Even allowing for the remarkable behavior of the plentiful upperwork, it can hardly be supposed that the Neapolitan sixth of bar 117 could so have swelled up of its own accord. Asma must be guilty of building it up.

There are in all seven organ recordings of this great work on LP. Of these, one other is done on an authentic classic instrument. By way of comparison it is reviewed below.

The very familiar "Jesu, Joy of Man's Desiring" is also played at the Old Church. The performance is notable chiefly for its artistic economy: the piece is played as a trio, in the manner of Bach's own Schübler arrangements. Registration is simple, with unison Gedeckt for the obbligato, Principal for the chorale, and 16′ plus 8′ Gedeckts for the bass. This scheme does not come off as well as might be expected, evidently because the reverberation at the microphone is so great as to run the notes together, and there are no upper pitches present to give definition.

The organ of St. John's, Gouda, was built by Moreau in 1736/1774. Its three manuals and pedal number some fifty-four stops, including a fine 32′ reed; over eighty ranks in all. Of the original instrument, the two principal manuals (Hoofdwerk and Rugwerk) and pedal are preserved virtually intact. The third manual, enclosed, is more recent.

The same type of recording was made here as at the Old Church, distant and spacious. It has the same clumsy volume compression. A little distortion does occur at the end of the Toccata, but the sound quality is considerably cleaner than previous recordings we have heard of the same instrument.

The great C major Toccata, Adagio, and Fugue is excitingly presented. At the outset, reeds are included in the full ensemble on manuals and pedal. They add zest to the flues without dominating the ensemble; in this they are very unlike the assertive French examples, such as the Trompettes at St. Merry discussed above. In the pedal solo there is a perceptible tendency of the reed basses to buzz. Through the remainder of the Toccata the manual reeds are retired, and delightfully appropriate contrasts are obtained between the Hoofdwerk and Rugwerk flue ensembles. The registration plan for the Adagio is the Principal-Gedeckt arrangement used in the Old Church chorale. It is restful, but the solo lacks the distinction a mutation or reed color would have lent. In the Fugue the weightier Hoofwerk and spritelier Rugwerk are again contrasted in authentic Baroque style. The performance is brilliant, although there are moments of rhythmic uncertainty.

Asma delivers the subject of the Basso Ostinato marcato, briskly, and creates for the piece a grand crescendo. Except for one respite where the mixtures are silenced for several variations, there is a continuing accretion of tone, building to a triumphant conclusion. The sound is magnificent, but the victory is that of Asma over Handel, for the heroic treatment is not really in keeping with Handel's chamber music.

J. S. BACH, Passacaglia in C minor; Pastorale in F major. HELMUT WALCHA, organ. DECCA DL 9560. $5.85.

This world-famed blind German organist and foremost authority on organs and music of the baroque presents a thoroughly satisfying performance in the present record. His first LP recordings appeared a few years ago, attracting great admiration, and can hardly have escaped the attention of the interested reader. The Passacaglia is representative of the remarkable qualities of Walcha's playing. It is singled out for comment because the same work is reviewed above in a newer release.

Walcha plays a classic instrument substantially dating to Bach's lifetime, as does Asma, but there is great contrast between the interpretations. The newer performance, by Asma, is neo-baroque, majestic, towering, immense, yet vitiated by a certain nervousness which strains the edifice. The earlier, by Walcha, is sensitively poised, lovingly detailed, a cosmos in miniature. One might be tempted to suggest that comparing them may be like comparing a good contemporary performance to that of Bach himself.

In this and his other records, Walcha has established himself as a consummate artist of the highest ability. His Passacaglia is restrained in tempo, affording opportunity for the apprehension of the voices and their phrasing. To hear Walcha play is to share the music with a self-effacing artist of profound insight. What higher praise could be offered?

Walcha, who learns his music with the aid of his wife, voice by voice, has memorized virtually the complete Bach organ works. His preference is to perform on classic instruments, as he has done in the present recording.

The vitality accorded his reading by the polychromatic tones and piquant textures of the small organ at St. Jakobi, Lübeck, is unmistakable. The registrations run the gamut from the single Gedeckt of the opening variations to scintillating full ensembles. The arppegiated fifteenth variation has an 8′ and big 2′ Flute; and the preceding variation is divided between this combination and a characteristic Regal. It is well-nigh incredible that Walcha could have managed the registration himself.

The recording is made close to the pipes, which speak in a resonant building. The resulting sound is well-detailed. It is not quite so clean as many new recordings, unfortunately. The blame for this may lie in the tape recorder, which appears to have introduced an unnatural harshness into the tone, particularly the upperwork. The effect is not unlike that of slightly out-of-tune ranks in a mixture. This might disqualify the record for the high-fidelity addict, but will scarcely disturb the musician.

Two other details which mar the record are the volume compression at the climaxes, which is carefully done but objectionable none the less, and an out-of-tuneness approaching catastrophic proportions in a few chords, which seems to be the fault of a few pipes and not a general condition. It is a great pity that these flaws have been tolerated, for an artist of Walcha's stature is deserving of better treatment.

It would be impossible to leave this disc without remarking the Pastorale, in which the performer again exceeds expectations. The four modest movements are played on the Schnitger organ at Cappel.* Light combinations of colorful Flute and Gedeckt stops are mostly employed. The flowing melody of the third movement is given to a delicately bright Gedeckt with tremolo. Again the recording technique does an injustice to the fine performances, as considerable distortion mars the tone.

"The King of Instruments, Volume II — Organ Literature; Bach to Langlais" J. S. BACH, Schübler Chorales, "Kommst du nun, Jesu, vom Himmel herunter," "Meine Seels erhebt den Herren," "Wo soll Ich flehin hin." H. W. DAVIES, "A Solemn Melody." J. S. BACH, Sonata No. 1 in E flat. J. ALAIN, "Litanies." A. VIVALDI, Concerto in A minor, "Allegro" (transcribed by J. S. Bach). J. LANGLAIS, "Paraphrase on Te Deum." L. SOWERBY, "Carillon." AEOLIAN-SKINNER 12″ LP, $5.00.

"The King of Instruments, Volume III — Organ Recital, ROBERT OWEN" J. G. WALTHER, " Meinen Jesum lass' ich nicht." J. S. BACH, "Nun komm, der Heiden Heiland." G. F. HANDEL, Concerto II in B flat. J. S. BACH, "Nun freut euch, lieben Christen g'mein." L. C. DAQUIN, "Noel Grand Jeu et Duo." L. VIERNE, "Carillon de Westminster." O. MESSIAEN, "L'Ascension, Meditation Symphonique No. 4." AEOLIAN-SKINNER 12″ LP, $5.00.

Here is a pair of records of much musical merit and superb fidelity. The second in particular is one of the finest ever to be offered.

In the "Bach to Langlais" volume, the performances while good are somewhat uneven, and the sequence of compositions is picaresque. The occasionally incongruous juxtaposition of literature is apparently the consequence of the stated intention to

* See *The Art of Voicing*, page 28.

demonstrate how the organs of the Aeolian-Skinner firm lend "authority to interpretations of literature having wide historical and tonal ranges." Numerous of the performances are capable and of great charm, but the case is less than proven, since so many different instruments are used.

The fine organs of Symphony Hall and the Cathedral Church of St. Paul in Boston, Massachusetts, and of the First Presbyterian Church, Kilgore, Texas, are each employed in several works. The instrument used for each selection is indicated, and in part the registration. Performers are Roy Perry, George Faxon, and the "staff organist," with the latter carrying the lion's share of the burden.

Any shortcomings of the previous release are absent from the delightful program by Robert Owen. His performances are fluent, idiomatic, and thoroughly satisfactory. The music is organized into a coherent program, obviating the disadvantages of the potpourri approach. Notable, too, is the courage of the performer in closing his program with a reflective composition instead of an overworked Toccata.

The recital is played on the instrument in Christ Church, Bronxville, New York. The organ, on the evidence of the record, is of outstanding quality. Reasonable in size, it is a three-manual of about sixty ranks; the complete stop list appears on the record jacket. It exhibits a much admired silvery richness in its ensembles, and a wide variety of colorful, blending individual voices. Much of the music has not previously been issued on LP, including the Walther, Daquin, and Messiaen works. Nearly complete registration details are provided for the program, an invaluable feature.

Mr. Owen demonstrates his ability and discrimination most impressively, and we shall expect great things of him in the future. Aeolian-Skinner has here the recipe for outstanding organ recordings. Our only complaint is that there are too few of them.

MARION BORON

Head of Music
Oxford School, Hartford, Conn.
The Hartford Seminary Foundation
Hartford College

Organist and Choir Director
Christ Church, Cambridge, Mass.
Boy Choir Training School

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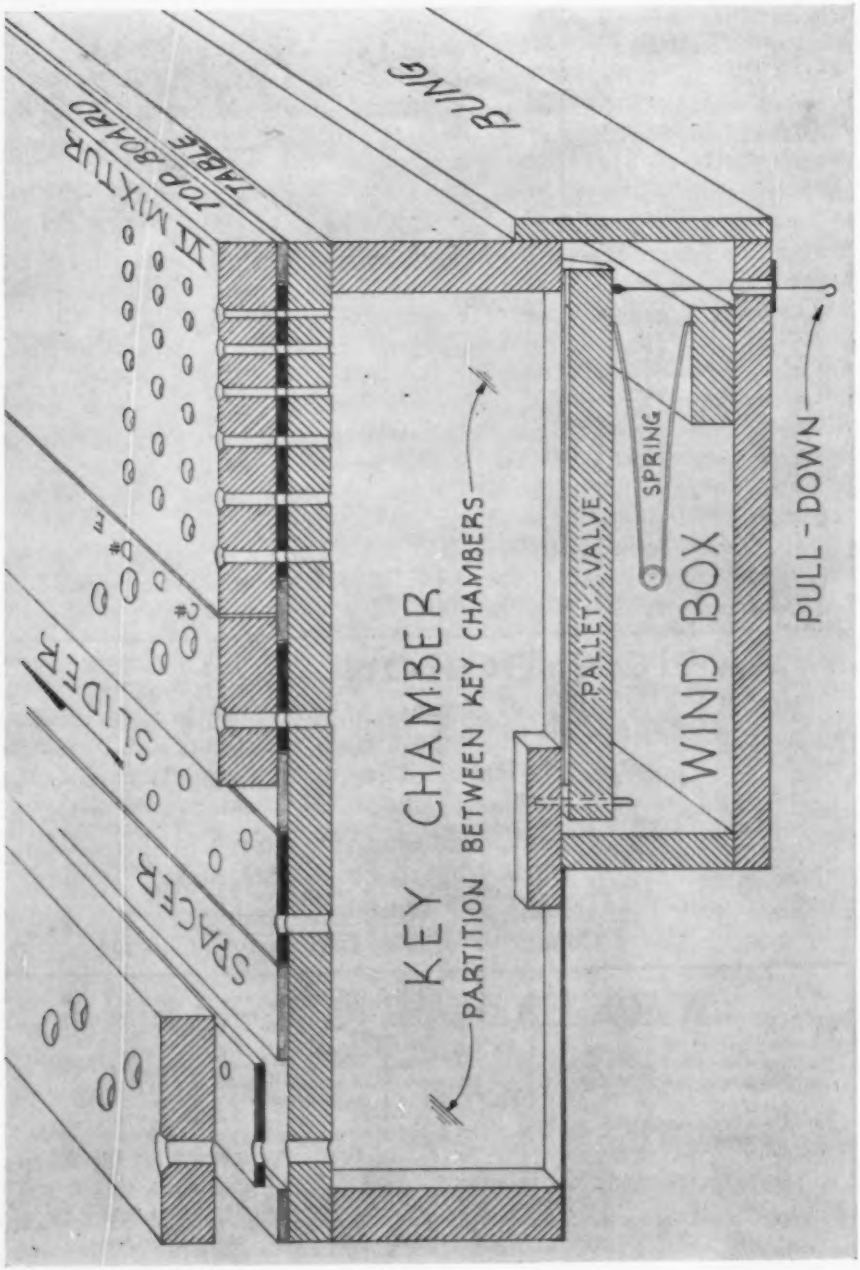

BUNG
TOP BOARD
TABLE
MIXTURE
SLIDER
SPACER
KEY CHAMBER
PARTITION BETWEEN KEY CHAMBERS
PALLET VALVE
SPRING
WIND BOX
PULL-DOWN

THE SLIDER CHEST

At the bottom of the slider chest is the wind box, which is filled with wind from the pressure regulators (bellows). The pallet valves, only one of which is shown, are placed side by side in a row extending throughout the gamut, the length of the chest. There is one pallet valve for each note of the keyboard. Directly above each pallet valve is its corresponding key chamber. The key chambers are narrow, and their length is the width of the chest. They are separated one from another by partitions. In the traditional form, these partitions are of wood about 1/2" thick, and their lower edges form the seats for the pallet valves.

The top of the chest has traditionally been one large board made of stock glued together edgewise to equal the necessary width. Spacers are fastened to the upper surface of this large board. The spacers elevate the top boards so that the sliders may move freely between table and top board. In practice, the spacers and sliders may be made of material of the same thickness, with a shim several thousandths of an inch thick added to the top of the spacers in order to provide the necessary clearance. This shim can be paper or it can be some other material, such as shim steel. The traditional sliders are of wood, frequently mahogany, and the spacers are cut from the same stock. In some modern slider chests, however, these parts are made of plastic materials such as formica, bakelite, et cetera.

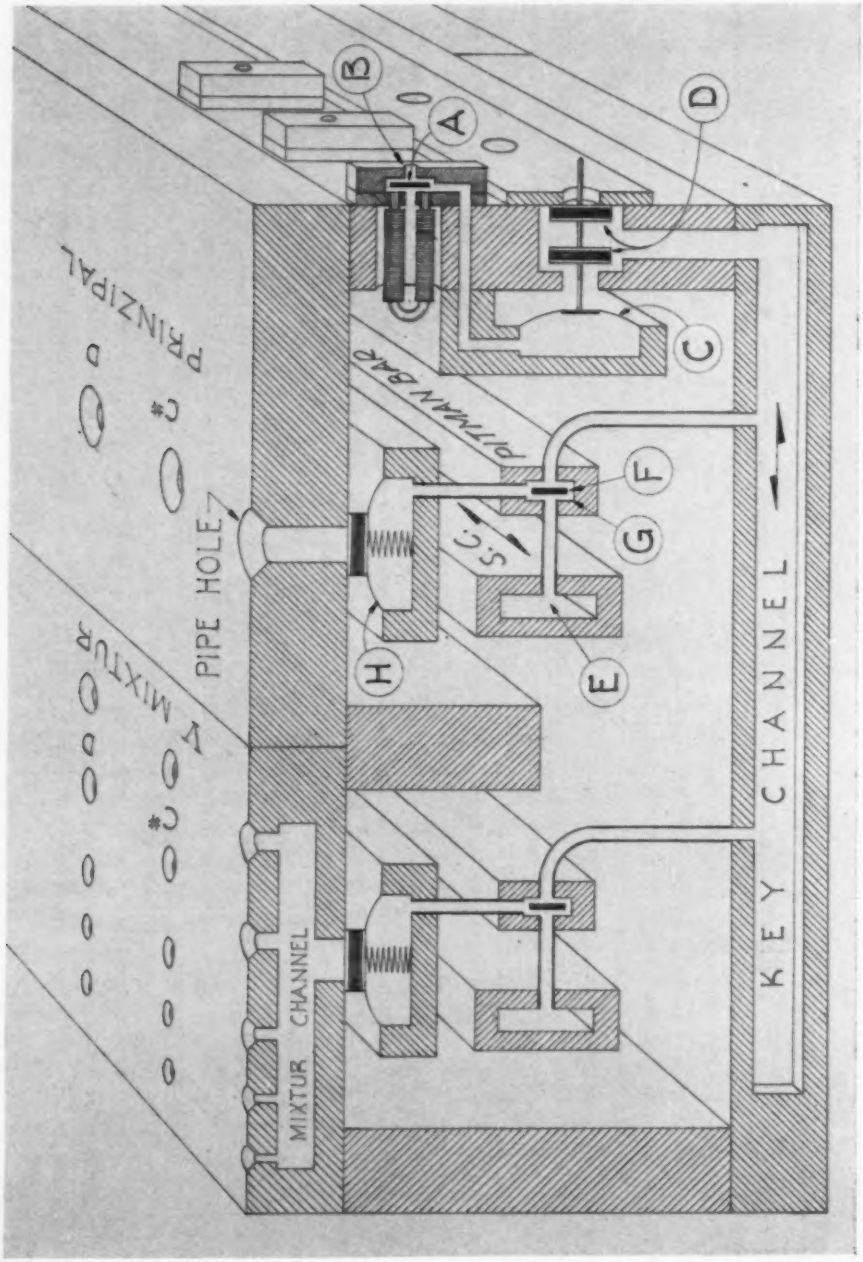
The pipe holes are bored straight through the top boards, sliders and table, so that they open into the key chamber.

The pallet valve is normally supported in the position shown by the spring and by the wind pressure. The pull-down wire passes through a sealed opening in the bottom of the wind box, and is connected either directly to the keys (as in a tracker organ), or to an electro-pneumatic mechanism which pulls the pallet valve. The pallet valve is hinged with leather or rides on a pin at the rear, and is opened by pulling down the front end.

When the pallet valve is opened, air passes from the wind box up into the key chamber. If a slider is in the position shown in the drawing, with the holes in alignment, the pipe placed over that slider will speak. Stop control is achieved by the simple expedient of moving the slider in the direction shown by the arrow, so that the holes in the slider no longer line up with the holes in the table and top boards.

Observe that the pipes are not fed directly by the valve, but from the large key chamber which is filled when the valve opens. In the traditional form as depicted, there is no escape for the wind after the valve is closed other than through the pipes and via incidental leakage. The musical characteristics of the slider chest can surely be attributed to the complex manner in which the wind enters the key chamber, cushioned by the atmospheric pressure already there, and to the slow cutoff as the chamber empties. The slider chest was temporarily abandoned at about the beginning of this century, along with the tracker organ, in favor of other types which then seemed more desirable.

But technological and artistic history shows that many devices are momentarily abandoned for reasons not directly connected with fundamental purposes. The straightforward operating principle of the historic slider chest, and its unique effect on distribution of wind to the pipes, have made it seem once again desirable, so that a number of builders in various parts of the world have begun to use it again. Basic principles never become obsolete, and it seems likely that with modern materials and modern methods of construction, coupled with other factors not directly related to the chest itself, the slider chest will make a come-back.


B
A
D
C
PRINZIPAL
C*
PITMAN BAR
F
G
S
H
E
PIPE HOLE
MIXTUR
C*
KEY CHANNEL
MIXTUR CHANNEL

THE PITMAN CHEST

A. Magnet armature (iron disc)
B. Magnet exhaust port
C. Primary pouch (circular leather diaphragm)
D. Primary valve ("inside valve" shown—fibre/felt/leather disc)
E. Stop channel (runs length of chest)
F. Pitman (leather disc—one for each pipe valve)
G. Pitman chamber (separate circular chamber for each pipe valve)
H. Pipe valve pouch (circular leather diaphragm with pipe valve glued to it; spring underneath)
Key channel (runs width of chest) (one for each note)

The Pitman chest is named for its form of stop control, which is centered in the pitman chamber (G). This chest's characteristic effect on the speech of pipes, however, is the result of the closeness of the valve to the pipe. Unlike the slider chest, the pitman chest feeds the pipes by valves located directly under each pipe. A certain amount of channeling may be interposed between the valve and the toe of the pipe, or an expansion chamber may be provided under each pipe. These and other devices only approximate the complex aerodynamic phenomena which occur in the key chamber of the slider chest. The principle of a valve for each pipe is used with identical results in chests with two other classes of stop control: the ventil chest and the unit chest. It is most important to note, therefore, that any musical attributes of the pitman chest apply also to the ventil and unit types.

There is a measurable lapse of time in the operation of any mechanical device, but in practice the following steps in the operation of the pitman chest appear to be simultaneous. Actually, one step may begin before the preceding step is completed.

(1) Key is depressed, energizing magnet and drawing armature (A) toward the left, away from its exhaust port (B).

(2) Air inside primary pouch (C) is reduced to atmospheric pressure by exhausting through its connecting boring, via the channel in the base of the magnet and port (B).

(3) Pouch (C) collapses from chest pressure, moving toward the left and drawing with it primary valve assembly (D).

(4) Key channel exhausts to atmospheric pressure through external opening of primary valve (D).

(5) Pressure in stop channel (E) drives pitman (F) to right side of pitman chamber (G), covering port leading to key channel, which is now at atmospheric pressure. Note that up to this point chest pressure is maintained in the pitman chamber and pipe valve pouch (H). No stop is drawn; no sound is produced.

(6) *When a stop is drawn,* however, stop channel (E) is exhausted to the atmosphere by its primary, and the pitman is pressed against the left port by chest pressure.

(7) When a key is depressed now the pitman chamber is exhausted via the key channel, and there is atmospheric pressure on both sides of the pitman. Thus pipe valve pouch (H) is exhausted to atmospheric pressure, it being connected directly to the "neutral" port of the pitman chamber.

(8) Pipe valve pouch (H) collapses due to the chest pressure on top of it, moving downward against the spring and opening the pipe valve which is attached to it, and chest wind flows into the pipe above.

Essentially, therefore, the pitman functions as a check valve, preventing the pipe valve pouch from exhausting when only one channel (key or stop) is exhausted.

ARTHUR HOWES

BUXTEHUDE

ONE of the most fortunate developments in recent years has been the re-establishment of the music of the great Danish composer, Dietrich Buxtehude, in the standard repertoire of concert and church organists. Born in 1637, he died in 1707, and was thus 48 years senior to Johann Sebastian Bach, who made the 300 mile journey from Arnstadt to Lübeck to hear him and study his music. Bach overstayed the leave that had been granted him and was subsequently censured by the consistorium for the "surprising variations and irrelevant ornaments which obliterated the melody and confused the congregation." His enthusiastic adoption of many of Buxtehude's musical practices and devices is further attested by innumerable passages in his organ music.

It is, perhaps, because of Bach's imitation of his music that Buxtehude for some time stood in Bach's shadow. Many musicians have until recently thought of Buxtehude as a sort of second-rate or immature Bach. No appraisal could be more mistaken. They are different; each has his own virtues. A close study and comparison of the works of the two masters reveals that the melodic, harmonic and rhythmic patterns which Bach freely borrowed from Buxtehude were usually employed by him for somewhat different purposes. Bach assimilated these technical devices, as he did those of Böhm and Pachelbel, into his own all embracing style, which was in its larger aspects very different from that of Buxtehude. By the same token, Buxtehude composed in a style that was distinctly his own, and achieved some effects that are nowhere to be found in Bach.

In general, Buxtehude's music is much more naively romantic than Bach's, and at times it is more subtly expressive. While Bach constantly maintains an insistent, energetic (or otherwise) contrapuntal movement, and thus develops a certain urgency and cumulative tension, Buxtehude offers more contemplative dalliance in less urgent, shorter, and at the same time more immediately enjoyable passages. In Bach the dramatic and climactic harmonic progressions are worked out and arrived at by the contrapuntal movement of the parts. In Buxtehude the contrapuntal movement seems to be added to an essential structure of chords more often than in Bach; Buxtehude even occasionally admits simple, unadorned chord progressions, quite candidly for the sake of their own effect, and otherwise seems to take pleasure in the momentary sound of the music. In this respect Buxtehude was more modern than Bach, anticipating the new homophonic style espoused by Bach's sons and later developed by Haydn and Mozart. Bach treated his musical subjects exhaustively by inventing a great variety of derived developments within single extended movements, in which the same tempo and rhythm is maintained throughout. In this respect Bach was more modern. His results are perhaps more powerfully dramatic than those of Buxtehude, but the latter achieved strong climaxes, nevertheless, by simpler and more obvious means. In following the earlier practice of breaking off from one rhythmic pattern and beginning a new section, usually based on a variant or extension of the earlier melodic material, but in a different rhythm and sometimes with a new time signature, Buxtehude may be said to have surpassed Bach in the matter of maintaining interest through variety and contrast.

No composer has ever equalled the monumental climaxes built by Bach. But nowhere in Bach's organ music is there to be found such poignancy as that of the Buxtehude Prelude and Fugue in G minor (which, incidentally begins with a wild ostinato that is

almost Lisztian, and ends with an obvious tenseness like that of Wagner), or the simple, child-like joy of "How Brightly Shines Yon Morning Star," or the wistful nostalgia of the D minor Passacaglia. The character of this last piece seems to have forecast the philosophical melancholy of Brahms' Fourth Symphony.

The utmost enjoyment of the great Bach works requires complete and constant concentration in order to fully experience their dramatic compulsion. On the contrary, audiences enjoy each passage, each moment, of Buxtehude's works, and no one can deny that they, too, work up to very convincing climaxes.

Bach is greater, of course, but at times he seems more swash-buckling and less refined, than Buxtehude. A varied diet is essential to physical health. Excellent as roast beef undoubtedly is, there are other nourishing foods. And real spiritual sustenance may be found in the music of Buxtehude, a great composer in his own right.

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M. A. VENTE

THE ART OF VOICING

THE editor of this periodical asked me to write an article on the art of voicing. I hesitated for a long time before deciding to answer this request affirmatively. In the entire art of organ building there is no more difficult problem, nor is there any question that is more dependent upon personal insight.

Moreover we cannot properly speak of voicing in general because, apart from personal taste, the sound character of every organ is dependent upon many other factors, such as the construction of the instrument (its wind chest system, the shape, scale and wall thickness of the pipes, its wind pressure, the material and shape of the case, et cetera), the acoustic characteristics of the church building, and its liturgical function.

While it is my intention to write about the art of voicing, I can only give a subjective view, which is based upon observation in Holland, Belgium, Germany, Denmark, Sweden, France, Switzerland, England, Spain and Portugal. My views are not shared by everyone, not even in Holland.

My principal and only starting point is that voicing must be fine, characteristic and convincing. This may seem to be a commonplace statement, but, nevertheless, it is in my opinion the only proper one to make. As long as organs are built there will be a difference of opinion about what is fine, is less fine, or is not at all so. In other words, my statement is a subjective one, to a degree. If we start from this one all-governoring principle, it is then fundamentally a matter of indifference which means are employed to obtain such beauty and character. We should never be slaves to one definite technical method, this not leading to a particular end. The method would then become an end in itself. No such predetermined axiom should be deferred to at all costs. To make my statement clear I shall give some concrete examples right away.

(1) There are many organists, organ builders and advisers who think that nicking the languid should be absolutely avoided. There are, however, those who think that every pipe should most certainly be nicked. The first group calls the other heterodox, and vice versa. To me, nicking or not nicking is not a principle, but a matter of practice. When a certain character cannot be obtained without nicking, well, nick the pipes without being too obstinate about it! As it is seen from the objective point of view, the problem is two-sided. It cannot be denied that the unnicked pipe is rich in harmonics, which the nicked pipe does not possess. On the other hand, it is true that the unnicked pipe sometimes has obnoxious, concomitant sounds. Between this devil and deep sea we must move, and it stands to reason that personal taste will play a part here, too. I, for one, am convinced that the voicer should first try without nicking the languid. If the results are then unsatisfactory, the pipe should be nicked delicately, so that the nicks are hardly visible. This is on the condition that the attack is free from unpleasant attendant noises. We should not try to avoid all transient sounds, for in that case the pipe is robbed of its individuality. The flute, also, which is the equivalent of an organ pipe in principle, possesses these transient sounds, they being inherent in the natural tone. The flute player is able to avoid *disturbing* noises by means of his expert technique.

Good organ pipes are always the product of handicraft, and mass production of pipes can never result in a good product. The finest handiwork cannot prevent a difference

between the pipes of the same stop, however slight it may be. Such differences are not objectionable. Here, too, the question is a subjective one, as to when these differences are unpleasant and when they are acceptable. In my opinion, these small differences in sound should not be judged at a short distance from the pipes, as inside the organ or from the console, but from the distance at which we listen to the instrument, in that part of the church where the worshippers sit closest to the organ. When we smooth out all of these little individual differences in the flues and reeds, the sound of the stops becomes monotonous.

(2) Problems of the same order appear in the making and voicing of reeds. The reeds in the eighteenth century, and also those recently constructed in "antique" style usually have their resonators too short in consideration of their pitch stability. Longer resonators generally have the disadvantage of the stop being poor in harmonics. In this matter, too, the happy medium will have to be found, and this will depend on quite commonplace practical circumstances. Is it reasonable to expect that the organist will be able to tune his own reeds? If so, the resonators can be made a bit shorter. The leathering of tongues may with some justification be compared to nicking the languids. In analogy with what I said about nicking the languids, I maintain that leathering the tongues should be sparingly done, and that the shallots should be covered with organ metal (about 35% tin).

Another bone of contention is the thickness of the tongues. In Spain and Portugal I heard many horizontal reeds, which impressed me very much indeed. Characteristic of these reeds, also of the trumpets with full-length resonators, is the thinness of the tongues. The character becomes, as a result, and in spite of the low wind pressure (about 2 1/2 inches), an aggressively lively one. The unavoidable disadvantage of thin tongues is that the reeds are very soon out of tune. I am sure that the bad state of repair in Spanish and Portuguese organs is partly, although not exclusively, the result of the difficulty of tuning the reeds. In the eighteenth century, also, we were faced with the difficulty that thicker tongues require a higher wind pressure, with a resultant loss of brilliance. However, this problem exists on a smaller scale outside the Iberian Peninsula and Latin America; every organ builder must face it. I am, therefore, inclined to make the tongues as thin as is desirable in view of a reasonable pitch stability. In this matter, also, there are no fixed standards to go by. In the case of an organist who is so well paid that he can be expected to tune the reeds himself, there is no objection to making the tongues a little thinner, scaling the resonators accordingly. It is a fact, though, that reeds constructed in the baroque manner must, at first, be tuned practically every day, but that soon afterwards they achieve a fairly normal stability of pitch and regulation.

(3) Another field of contention is the one of mouth width and cut-up. In my opinion, books on organ building have done mischief rather than otherwise. Here or there they have found a stop with a particular mouth width and cut-up, which had remarkably fine tone. They then made the mistake of considering these single instances as representative of a complete system. Further study will disclose the incorrectness of many of these statements. In the art of organ building of the sixteenth century there were so many differences in scales that it is very difficult to discover hard and fast rules in this matter.

Things become even worse when a certain system of pipe construction and voicing is erroneously attributed to the wrong organ builder or style. In this connection it is remarkable to note the somewhat painful error by which the organ at Cappel (near Bremen in the northwestern part of Germany), made especially famous by Helmut Wal-

cha's recordings, should become an instrument of Arp Schnitger, built in 1686! There are not a few who have maintained that this organ is the *nec plus ultra* of the baroque style. In reality this instrument, which was originally installed in a Hamburg church, comes from the Brabant-Hamburg school. It was built in 1567, probably by Dirick Hoyer. Arp Schnitger provided it with a new case and several new stops, but retained its old sound character. This organ, therefore, is not a baroque instrument, but the most important example of the Renaissance organ.

For the rest I think I may refer to the Summer, 1952 issue of this periodical. I will again stress my statement that voicing does not mean uniformity, but first and foremost, character. Many may consider my ideas extreme, but I beg to contend that this is not so. I do think that extreme ideas and dogmatism have worked great mischief in organ culture. Witness the mistakes made here in Holland, too, some years ago. Dogmatism results in rigidity, just as dangerous as obstinate conservatism.

Some readers may accuse me of superficiality. I cannot deny that I have made some general statements. In this respect I am in good company. Dom Bédos de Celles asserts that the details of voicing cannot be put on paper. Another eighteenth-century expert par excellence, Jan van Heurn, a Dutchman, says about this: "We should not expect that I should describe the true sound of a well-voiced pipe; everyone knows this to be impossible." And also, "We can give very general rules only, in this respect experience being the only teacher."

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N. LINDSAY NORDEN

A NEW STUDY OF INTERVALS

PRESENT day theory books base everything upon the Equal Temperament of the keyboard, and, on this account, much of the material in them is distorted, and in some instances incorrect. The student trained in this way has but a partial understanding of the whole matter, for keyboard music is only a part of all musical composition. All temperaments (and there have been many) are alterations of the just or untempered scale. It is essential that a study of pure intervals be made in order to understand their characteristics and tendencies. For even on a keyboard, where it is not possible to produce pure intervals, the characteristics and tendencies must be assumed to exist even in the incorrect tunings. Although we cannot produce F♯ or G♭ in true intonation on the keyboard, the key we use for this note is assumed to be correct for both. Of course, it is neither pitch; it lies in between the two pitches. But we recognize the difference in writing for the keyboard, and in D major we use F♯, while in D♭ major, G♭ is used. The same key is struck in both cases.

The teaching of musical theory, *via* a piano, incorrectly assumes that a tone is a single musical sound, which, of course, it is not. Every tone used in musical practice is a compound tone, that is, it consists of a sound which is the lowest and most prominent and a series of upper partial tones. This series depends upon the physical structure of the instrument producing the tone. The tone which is named is the root, or fundamental, of this series. In all music, therefore, there is indicated on paper *only* the *pater familias* of a whole family of tones.

For example, consider a simple, four-part chord, C-E_1-G-c.* Each of these four tones has its system of upper partials. Since there are two C's (C and c) some of these partials will coincide and others will be octaves apart.

1	2	3	4	5	6	7	8
C	c	g	c^1	$e^1{}_1$	g^1	$^7b^1♭$	c^2
E_1	c^1	b	e^1	$g♯^1{}_2$	$b^1{}_1$	$^7d^2$	e^2
G	e_1	d^1	g^1	$b^1{}_1$	d^2	$^7f^2$	g^3
c	g	g^1	c^2	$e^2{}_1$	g^2	$^7b^2♭$	c^3

If this series is continued upward, beginning with the twenty-fourth partial, the major scale (24, 27, 30, 32, 36, 40, 45, 48) is produced and, higher still, the minor scale (120, 135, 144, 160, 180, 192, 225).

Theory based upon Equal Temperament, with its numerous inaccuracies, disregards the above and other important matters. Intervals, and their combination into chords, form the backbone of all modern musical composition. A single musical sound, as noted, has a horde of satellites; an interval, the combination of two such tones, has many more.

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*Tones marked with a sub or super index are a comma, or more, lower or higher, respectively, than plain letters. The thirds in C major must be separated from the fifths. C major, then, consists of C, D, E_1, F, G, A_1, B_1, c. The thirds of major chords are not generated by laying out a series of fifths, as usually taught. The E in the fifth series C, G, D, A, E cannot be transposed and used as a third in C major. A comma has the ratio 80:81.

Further, the combination of two tones brings into play another element that must be considered. For when two tones are sounded simultaneously, resultant, or difference tones, often called combinational tones, are created. These are quite audible and color the interval. There may be several resultants audible, but the first is the loudest. For example, if c and e_1 are sounded (ratio is 4:5) the differential tone 1(CC) is created (5 minus 4 equals 1). Therefore, when an interval is sounded, not only is the harmonic series of both tones created, but differential tones *below* the interval occur.

Some elements of the harmonic series are not used in present musical practice, which does include, however, numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 15, 16, et cetera. Numbers 11 and 13 may be brought into use in the future, but certainly not under the domination of Equal Temperament. The seventh partial is much used, but not recognized, in music where the pitch is free, such as that of string quartets and a cappella music, and chamber music without piano. A good a cappella group singing a dominant seventh chord will always use the harmonic seventh, in fact, they cannot avoid doing so!

The smaller the ratio numbers representing an interval, the more consonant is that interval. Conversely, the intervals with high ratio numbers are more dissonant. In these intervals there are conflicts causing beats between lower and louder upper partials, whereas in the more consonant intervals these conflicts are at a greater distance above the fundamentals. It would be difficult to select a single point where "consonant" intervals may be separated from "dissonant" intervals. There is only one supreme consonance and that is the unison; every other interval is dissonant to some degree. The human ear does not like dissonance — it is disturbing. It seeks to resolve dissonance into consonance. The beats in dissonance are annoying. Dissonance is usable in musical composition as an element of suspense, conflict or tension, and music provides these two contrasting elements, consonance and dissonance, in varying quantities. In Wagner's "Valhalla" we have simple triads played on the pure tones of the horns, while in the "curse" there are growling seventh chords.

As we hear them, intervals with higher ratios (the stronger dissonances) seek to move to better consonances much more noticeably than those intervals with lower ratio numbers, but all intervals seek to move towards unity. Every interval seeks to move to the nearest consonance. This aural consonance seems to "pull" on it. Unity exerts an influence on all intervals derived from it. In the upper partials of a fundamental tone lie all the intervals, the major and minor scales, and all chords.

Now, all this is based upon experience with Western music, a system which has evolved naturally through the ages. To assert any theory involving other systems of music would require an entirely different study and analysis. Many such systems have been purely melodic. The Western musical system is more advanced, despite the remarkable beauty inherent in purely melodic systems.

Intervals are always considered to be based upon the lower of the two tones, for the upper tone is, or is not, a partial of the lower. The lower tone is not considered as "hanging" from the upper. There are no lower partials; there *are* resultant tones, as we shall note.

When an interval is based upon 1, 2 or a power of 2 (4, 8, 16, et cetera) it is based upon a tone which sets itself up as an isolated tonic, or base, of a harmonic series and this causes the upper tone to be measured as though it were a partial, or overtone, of that fundamental, represented by 1, 2 or a power of 2. When an interval has an odd upper

number it will tend to expand, for the nearest better consonance will be the next higher number in the harmonic series, which number may or may not be a tone used in musical practice. The fact of this expansion has long been taught — that is, major dissonances tend to expand and minor dissonances to contract. But consonances, including octaves, fifths and fourths, also tend to move, though with less activity than the dissonances. Thus 8:15 (C-b_1) tends toward 8:16 (C-c). But when the odd number is the lower of the two interval numbers the interval will seek to contract, for the nearest consonance will be found by taking the next higher number to the odd lower number. Thus 9:16 (D-c) tends toward 10:16 (E_1-c) or 5:8. The above has to do with all intervals in which one number is even and the other odd.

All intervals containing 1, 2 or a power of 2 as the upper interval number are inversions of fundamental intervals. Thus, 9:16 is an inversion of 8:9, and 15:16 is an inversion of 8:15. These intervals are "secondary" as contrasted with those based upon 1, 2 or a power of 2, which are "primary."

There are other intervals which do not contain 1, 2 or a power of 2, either as lower or upper tones. These intervals are based upon overtones, or partials. Considered as an isolated interval, such an interval finds its nearest best consonance in the next larger or smaller whole number (used in musical practice).

Since these intervals do not contain 1, 2 or a power of 2, there is no sense of tonic; they appear as isolated, "floating" intervals. The interval 5:7, a subperfect fifth, heard in the dominant seventh chord where the pitch is free (4:5:6:7), tends toward 5:6, a minor third, as the nearest consonance. The interval 3:5, a major sixth, tends to 3:6 or 1:2, an octave. The interavl 7:9, part of the dominant ninth chord (4:5:6:7:9), seeks to move to 6:9 (2:3), a perfect fifth. The interval 5:9 (E_1-d) tends to expand to 5:10 (1:2), E_1-e_1, an octave. In an interval having two odd numbers the upper number can never be any partial of the lower number. Thus, 5 is not a partial of 3 (in the major sixth), nor is 7 a partial of 5 (in the subperfect fifth, 5:7). The septimal intervals, which as noted are not recognized in theory based upon Equal Temperament, are found in the pure seventh and ninth chords.

This action of single, isolated intervals is altered by the action of intervals within a key-area; this more powerful attraction frequently changes the pure interval action. In C major the interval A_1-B_1 (8:9) tends toward G-c (3:4), but as an isolated, untonal interval A_1-B_1 tends to move to A_1-$c_2\sharp$, 8:10 (4:5). In the harmonic series based upon an F, which series generates the C major scale, there is but one interval 8:9 (32:36, F-G) in the scale, which as an interval tends toward F-A_1 (4:5), but in the key of C, the pull of the key-center causes F-A_1 to pass to E_1-G. F goes to E_1, and A_1 to G. The interval E_1-G is more dissonant that the interval F-A_1. Similarly, the perfect fifth, F-c (2:3), moves to the minor sixth E_1-c (5:8) although the fifth is a more consonant interval than the minor sixth. As an untonal interval F-B_1 (32:45) will tend toward 33:45 (11:15), an interval not used in musical practice. F-c (32:48 or 2:3) *is* an interval in musical practice. So under key-center domination F-B_1 moves to F-c. If the key-center is C, for example, this unity, C, "pulls" on all intervals composed of its partials, and some of this attraction is infused in the first partials, namely E_1, G and c. The remaining tones D, F, A_1 and B_1 are pulled into one of the stronger tone, E_1, G, c. This is all based upon the fact that the center of this particular "universe" is C. If we accept another tone as center of another "universe," its partials stand in the same relationship to it.

As an isolated interval G-f (9:16) moves to 10:16 (5:8), but the *harmonic* seventh

G-^{7}f (4:7) moves to G-g (4:8) or 1:2. The diminished fifth, B_1-f (45:64) tends to B-^{7}f (45:63 or 5:7). Under the key-center influence both G-f and G-^{7}f move to G-e_1, a major sixth.

The Pythagorean minor third, 27:32, (always between the second and fourth degrees of all pure major scales) seeks to contract to 28:32 (7:8) or D-F seeks to move to ^{7}E♭-F. The subminor third D-^{7}F (6:7) seeks to move to D-G, 6:8 (3:4), a perfect fourth. In the dominant seventh chord, D-F moves to C-E_1, or both tones to E_1, and D-^{7}F does the same. The key-center C and its third, E_1, dominate strongly over the independent tendencies of the single intervals.

It is necessary to refer again to differential, or resultant, tones, for these color the intervals almost as much as do the upper partials, or harmonics. The first resultant tone is usually quite strong, especially if the interval is fairly high pitched.

Theory books of today, based as they are almost exclusively upon Equal Temperament with its many deceptions, do not differentiate between thirds and tenths, fourths and elevenths, et cetera. Some books state a rule that in four part writing the alto part must not be separated from either the soprano part or the tenor part by more than an octave. The reason for this will be clear from what is to follow.

The relative degree of consonance of any interval may be determined by its ratio numbers, and an interval may be graded among other intervals by the sum of its ratio numbers. (Where two indices are equal, the one containing the lowest ratio number is the more consonant. Thus 4:7 is more consonant than 5:6) The degree of a major third, therefore, is 9, while that of a major tenth is 7. The degree of a perfect fourth is 7, while that of a perfect eleventh is 11. This brings out the fact that intervals having an even-numbered element are improved in consonance when increased by an octave, while those having an odd-numbered element are not. Further, the resultant tones are different. Intervals having two odd-numbered elements are not improved by the addition of an octave. Thus 5:7 would become 5:14, and 3:5 would become 3:10. The dissonance degree is thus increased.

In addition to producing difference tones, intervals produce beats, due to the alternate coincidence and interference of the sound waves which produce the interval. Beats may be caused by interference between the fundamental tones, or between partials. Intervals are not constant in their smoothness throughout the entire musical scale, for it has been determined by experiment that, as intervals are sounded in the lower part of that scale, some of those which are pleasant in the middle or upper registers become rough and unpleasant in the lower registers. The smaller the numbers representing the interval ratio, the lower in the musical scale will that interval sound well. Octaves, fifths and fourths can be very low and sound well, but the effective compass of other intervals is smaller. Thirds do not sound well in low pitches; they are muddy and unsatisfactory. All low pitched chords are much more satisfactory in just intonation than they are in Equal Temperament. A few examples of beating partials follows.

Interval	*Beating Partials*	*Degree of Consonance*
Octave	none	3
Fifth	Fourth of lower, third of upper	5
Fourth	Third of lower, second of upper	7
Major sixth	Third of lower, second of upper	8
Major third	Fourth of lower, third of upper	9
Minor third	Seventh of lower, sixth of upper	11

Practically all harmony teaching has been confined to approximately three and a half octaves: low bass (voice) F to high soprano A or C.

Thirds were slow in being admitted to the better intervals in the development of music, no doubt due to the fact that early music was for male voices, and, also, that in Pythagorean intonation the major thirds were very sharp and the minor thirds flat. In the case of major thirds in this intonation there is a sharp dissonance (80:81) between the fifth partial of the lower and the fourth partial of the upper (e and e_1). Walter Odington, a monk of Evesham, in Worcestershire (died after 1300) stated that there were six less perfect *double sounds*, major and minor thirds, major sixths, the two tenths and the eleventh.

In Equal Temperament the smallest deviation is in the fifth and, correspondingly, the fourth. This deviation makes the fifth approximately one-half a vibration flat, that is, g has 396 vibrations in pure intonation as compared with 395.553048 plus in Equal Temperament. Experiments have shown that many ears are capable of hearing smaller deviations than that, but, if this is accepted as the standard smallest deviation discernible, the consonance degree 264:396 (2:3) or 5, may be measured in comparison with 395.5, or 659.5 as compared with 5. If two tones start as a unison and are gradually separated until they are an octave apart, the degree of consonance constantly varies as they separate. Their consonance is at its best where the ratio numbers, reduced to their lowest terms, are small. Some of these intervals with low ratio numbers, however, are ratios not used in musical practice. A test made by Preyer using such intervals as 10:13, 12:19, 17:20, et cetera showed that musicians considered them consonant, although they were not told in advance what the intervals were to be. In the case of the two tones mentioned, gradually separating up to an octave, the greatest dissonances are nearest the greatest consonances. If a perfect consonance is slightly mistuned the ear will endeavor to hear the mistuned interval as the correct one, but it will not be as satisfactory to the ear as the true interval. Further, the smaller the ratio numbers, the more the ear will accept a mistuning, for, as the ratio numbers increase, the beats, caused by even a single vibration mistuning, are greater in number and, therefore, more disturbing to the ear. As a mistuning is increased a better interval may be produced than by a slight mistuning, although such an interval may very likely not be used in musical practice.

Pythagorean intonation, since it was used melodically, could not have been very disturbing. (The author has an organ tuned in this intonation and on it melodic passages are fairly satisfactory to the modern ear.) The fourths and the fifths of this system were perfect. As tones were gradually combined the sharp major thirds and the flat minor thirds undoubtedly caused them and their inversions, the sixths, to be considered dissonances. The false resultants of this system sound badly. Resultant tones are considered to have been discovered in 1745 by Georg Andreas Sorge, a German organist, and later by an Italian, Guiseppe Tartini in 1754. Tartini called these tones *terzi suoni.*

There has been considerable discussion in the history of music concerning the fourth, as to whether or not it was dissonance. The interval *in itself* is very consonant. In its position in a key it may demand movement. This, no doubt, gave rise to the tendency to sometimes treat this interval as though it were dissonant. All perfect fourths in the key of C, except G-c, will tend toward thirds. C-F to C-E_1, D-G to E_1-G (or C-G), E_1-A_1 to E_1-G, B_1-e_1 to C-e_1. F-B_1 is an augmented fourth (32:45) or, using the harmonic seventh, 7:10, and it tends toward E_1-c. A_1-d is a *grave* fourth (20:27) and both tones move to G-c or to G-e_1. The fourth, G-c, is in the key chord and is at rest. The fourth *above*

C, C-F, is not in the key chord, although it is just as consonant as an interval, but it requires resolution to C-E_1, for E_1 is a partial of C.

Present-day theory books are written as though there had been no change in intervals since they were first used. The only fundamental, unchanged scale throughout the ages is the just scale on which these calculations are based. Alongside this scale are all the temperaments that have been devised (and their name is legion) and with which, at one time or another, musicians have had to cope as they are now coping with Equal Temperament. Many, many times pitches that are never heard are written on music paper. The nearest that actual sounds coincide with the written symbols is in keyboard music, where the instrument is approximately in Equal Temperament. No instrument is ever actually in Equal Temperament, at least not for very long. The movement of intervals as written on music paper is a sort of photo-play of the real intervals, originally employed to make the picture.

The major third, E_1-$G_2\sharp$, in the augmented triad C-E_1-$G_2\sharp$ has the ratio 4:5, and the augmented fifth the ratio 16:25. In Equal Temperament $G\sharp$ and $A\flat$ are considered identical and, therefore, C-E_1-$G_2\sharp$ is considered the same as C-E_1-$A^1\flat$, which is the first inversion of the augmented triad $A^1\flat$-C-e_1. However, the interval C-$A^1\flat$ has the ratio 5:8, as compared with 16:25 for C-$G_2\sharp$. The latter is much more dissonant, but on a keyboard the intervals are identical! This distortion of intervals has all but ruined the musical ear — dissonance and consonance are mixed and interval recognition confused. C-$E^1\flat$ is 5:6, but C-$D_2\sharp$ is 64:75, which is tremendously more dissonant. On the keyboard the two intervals are identical, although they may be written correctly on music paper. It is questionable how many string players, for example, can play an augmented second, although they may differentiate between $D\sharp$ and $E\flat$. Music will some day have to regain these fine distinctions. This is vastly more important than discussing further mechanical subdivisions of the octave into "quarter tones" and the like, or "tone rows" and all the "-alities." Such discussions seem to be concerned with music on paper rather than music in sound. Music performed with pure intervals is a delight to hear. Chords are more compelling and there are greater character differences between them; they stand out with a more marked individuality. Such music requires much less in the way of "modern" chords and futile attempts at all sorts of "tone masses." In all kinds of music produced without a keyboard Equal Temperament is frequently used only in part, despite theory teaching based upon it, and sometimes Equal Temperament is not present at all. In practically all the older symphonies and chamber music Equal Temperament is not used; players,simply by means of their sensitive ears, find the true pitches.

The harmonic seventh and the harmonic ninth have bothered theorists a great deal, so much so, in fact, that they have been omitted from theory teaching altogether. The tone that is taught as the seventh of the dominant seventh chord is the scale seventh, and for the ninth of the ninth chord, the sixth degree of the scale is made to serve. The harmonic seventh does not appear as a scale tone, whether the keyboard is in pure intonation or in Equal Temperament. However, if there is anyone who cannot hear the harmonic seventh in the dominant seventh chord, and the harmonic ninth in the harmonic ninth chord, when these chords are produced in free pitch, he certainly needs ear training, to say the least! These two harmonic tones are just as much a part of musical performance as is a fourth or a fifth in the scale. Therefore, such tones should be included in theory teaching. In the dominant ninth chord, G-B_1-d-^{7}f-a, the tone, a, has been raised from the scale tone, a_1, of C major, and this a is the tone that is heard when the pitch is

free; a_1 is *not* used in this chord.

Prior to the adoption of Equal Temperament, meantone temperament was used on keyboards. In fact, the development of the keyboard gave rise to the creation of all temperaments. It required sufficient notes within the range of the human hand for the production of all music. In meantone tuning the intervals were different from Equal Temperament. A table of four intonations is given. The intervals are calculated in *cents*, a cent being 1/1200th of an octave. Here whole numbers are used, the fractions are omitted.

	Just	*Meantone*	*Equal Temperament*	*Pythagorean*
C	0	0	0	0
D	204	193	200	203
E	386	386	400	407
F	498	503	500	498
G	702	696	700	702
A	884	889	900	906
B	1088	1082	1100	1109
C	1200	1200	1200	1200

In meantone temperament the major thirds were correct, although the minor thirds were flat, since the fifths were flat. This intonation sounds very satisfactory on keyboards, better than Equal Temperament, in fact, but since the keyboard finally assumed a form incorporating only twelve elements, it was possible to play in only a few keys, B♭, F, C, G and D majors, and G, D and A minors. Pythagorean intervals were never intended for harmony and cannot be so used, particularly on account of the very sharp thirds. In fact, the "thirds" of this system were not thirds at all but merely transposed fifths. C 702 G 702 D 702 A 702 E equalled 2808 cents, which reduced two octaves (subtracting 2400 cents) gives E as 408 cents. This "E" is the E that most of the theory books call a "third," that is, one generated by a series of fifths. Nothing could be more incorrect!

It will be seen that the mistunings of Equal Temperament are not constant. The difference in cents from just intonation will indicate that. The thirds are the worst of the mistuned intervals. No one may learn much of value from the study of intervals in Equal Temperament; it is only through the examination and study of the pure intervals that any fundamental facts can be discerned.

Referring again to resultant tones, it will be seen that when intervals are in Equal Temperament the resultants will be out of tune with the intervals. In other words, c to e is 14 cents sharp in Equal Temperament and, therefore, resultant 1 will be sharper than true 1. If CC is played with the interval c-e there will be two 1s, the true 1 played and the sharp 1 resultant. The octaves remain unaltered in Equal Temperament. All this colors the effect of the music, less, to be sure, on the piano, with its dying tone, than on an instrument or instruments which sustain. What a pleasure it is to hear music in pure intonation; it is like the fresh aroma of spring-time air!

The music produced by means of keyboard instruments is but a small part of all musical composition. Notwithstanding, every time that matters of tuning come up for consideration, there is brought into the matter the idea of newly-designed keyboards. Of course, many keyboards have been invented and doubtless many more will be attempted, but these problems do not have to do with the entire field of musical theory, which should be correct even for a keyboard that distorts the actual pitches. There are

many active in the field of musical performance and composition whose ears are not keen enough to discern these finer, but real, differences. They may not be called "musicians" in the full sense of the word; perhaps they are good musical "engineers." Or perhaps they are interested in music from the technical, historical or scientific side. Those who can sense and appreciate these matters are the ones who must lead in the teaching of musical theory and in the application of that theory to composition and to performance. Music must not be dominated by keyboards or by Equal Temperament.

An effort has been made to point out some of the laws of interval action. In a scale there is melodic action, the "active" tones seeking the "rest" tones, or tones of the key center. Similarily, as we have seen, intervals are seeking to move to more consonant intervals and finally to Unity or the Center. From a single tone, as a starting point, the scale is evolved, and also, intervals and all the laws of the movement of tones, harmonically or melodically. This evolution will continue, of course, and music will expand, but such expansion will not take place through any mechanical attempts to expand Equal Temperament. It may come through the unfolding and use of more intervals, also through the correct use of those now recognized. The eleventh and the thirteenth harmonics may be the next intervals to enter the group of intervals used in music.

Musical theory will not remain static. Its development cannot consist of merely espousing new methods of presenting the same old, and often erroneous, material. This has been done for a long time. New and advanced studies must be made, true laws rediscovered; there must be many of them. The above is offered as a workable theory.

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JOHANNES JAKOB BOMMER, AN UNKNOWN SWISS ORGAN BUILDER

TWO organs provide justification for tracing the career of Johannes Jakob Bommer, in order to learn more about him. One is now a good instrument, and one is in a deplorable state, awaiting its restoration and rebuilding. They are the organs in the former abbey churches of St. Katharinenthal (Kanton Thurgau, near Schaffhausen) and Fischingen (Kanton Thurgau). They are the only remaining evidence of the existence of an important minor Swiss organ builder. All his other works have disappeared, and only the archives inform us that Johannes Jakob Bommer built quite a number of organs, which must have been as remarkable as those examples of his work which remain.

We do not know where or when Bommer was born. The only certain fact is that he was a Swiss, since the name Bommer is quite common in the village where he lived in his later years, as well as in the surrounding places. His first work having been completed in 1720, we may suppose that he was born between 1690 and 1695, if we take into consideration the fact that in those times organ builders in about their eighteenth year were accepted for a three or four years apprenticeship and afterwards were expected to travel for three years as journeymen before they settled and opened a permanent workshop. Bommer chose Weingarten, a little village near Frauenfeld, the present capital of Kanton Thurgau. Perhaps he was born there or had relatives in the community. Some years ago he was said to have been a citizen of Weingarten, Germany (which has a great abbey with the famous Gabler organ, presently being restored), which is incorrect, for most of his contracts named him "Master Bommer of Weingarten-Lommis." Lommis is the next village and its church was also Weingarten's church. An entry in a chronicle in the Einsiedeln Abbey library mentioned the little town of Gutenberg, Bohemia after our master's name. This was an enigma for many years, but when the original specifications of the Fishingen organ were found, it was understood. There are certain similarities between this stop list and some Bohemian organs, which indicates that Bommer spent his apprenticeship in that country or afterward worked for some time in Gutenberg, since his wife is said to have been a native of that place. Unfortunately, the present circumstances do not allow us to examine the Gutenberg marriage records of the years 1710 to 1720 in order to obtain the proof.

In 1720 Bommer built an organ for the Catholic church at Unter-Aegeri (in central Switzerland, near Zug) that has disappeared because the church has not been used since the middle of the nineteenth century. The second organ was built for the convent of Münsterlingen in 1723. We believe that the present instrument's case is the original, although the pipes have been changed. In 1728 he is reported to have repaired a small organ for the "Musikkollegium" at Winterthur (founded in 1629), which had been built in 1664 and contained these stops: Manual: 8′ Prinzipal, 8′ Coppel, 4′ Oktav, 4′ Holzoktav, 2 2/3′ Quint, 2′ Superoktav, 2′ Flöte. Pull-down Pedal.

His third known work, built in 1730 for the convent of Kalchrain (near Frauenfeld) met the same fate, since all the convents in the Kanton Thurgau were secularized in 1848. Their organs were allowed to fall into disrepair or were removed to other churches. We are happy that Bommer's next two works, the St. Katharinenthal organ built in 1736, and the Fischingen organ built in 1741 and 1742, which are still preserved, offer

St. Katharinenthal, former abbey church. Case in late baroque style, 1736. Separate Ruckpositiv.

convincing evidence of his mastership. In 1750 he was called to Kirchberg in the Toggenburg valley, in 1761 to the St. Lawrence church in St. Gallen, and in 1767 to the St. Niklaus church at Frauenfeld. All these organs have since disappeared, and we cannot now find their stop lists. It seems justifiable to surmise that Johannes Jakob Bommer died in about 1770, since there is no mention of him after the Frauenfeld contract of 1767. It has not been ascertained whether or not he was buried at Lommis, because the chronicles of that period are not now obtainable. His workshop was carried on by Michael Grass, whose organs have disappeared without exception.

Bommer's biography is short and there were not very many organs. However, two of them are important since they increase the present number of good examples of old Swiss organs. We shall deal with them in the following lines.

In 1735 the church (chapel) of the convent at St. Katharinenthal was solemnly dedicated although there was still no organ on the large west gallery. The wonderfully painted carved balustrade was installed immediately thereafter, together with the organ that was brought by servants of the convent from Bommer's workshop. An account says that in March, 1735, he began building the Oberwerk, and that he received the last part of his fee in June, 1739. The price of the instrument was 1400 florins, the artist having been responsible, also, for painting and decorating the case, and especially those lovely angels on top of the main case. Bommer also built a little Positiv organ to be placed in the Choir of the church; he received 50 florins for that instrument. This Positiv may be one reason why the artist was not paid until three years after the completion of the large organ. A more obvious reason is that the convent was extremely short of money, as the big church may have cost a little too much for the congregation of nuns. Since no contract is preserved we do not know the original stop list exactly, but it is not very difficult to guess it from the inscriptions which remained on the console when the restoration was decided upon in 1938. In 1754, 1760, 1769, 1778 and 1790 it was repaired. Johann Konrad Speissegger (1760) and his son, Johann Heinrich Speissegger (1790), two well-known organ builders, are mentioned in a chronicle, but no particulars are given as to what they did. In 1769 Johann Conrad Scharf, organ builder at Feuerthalen, is said to have changed the action of the Pedal wind chest, and to have added six pipes in that section, while in 1778 Ludwig Ehrlich repaired certain parts of the instrument. In the year 1853 Johann Jacob Huber and in 1857 Eduard Hietergrafgen changed some of the pipe work and probably added the string stops (Salicional, Fugara, Spitzgambe), which were found in the organ in 1938. On April 29, 1864, the council of Kanton Thurgau decided to have the organ restored after Preach Merk reported on the instrument. This proposal was never carried out because the church was abandoned in 1869. This permitted the children of the nearby little town of Diessenhofen to fill their pockets with organ pipes, removing them as souvenirs. It is no wonder that in 1938 only a few pipes were left, and the then remaining stop list had to be made up from inscriptions on the console:

Oberwerk
8′ Coppel
8′ Principal
8′ Salicional
4′ Flöte
4′ Octave
2 2/3′ Ouinte
2′ Superoctave
V Mixture (1 1/3′)

Rückpositiv
8′ Coppel
4′ Principal
4′ Fugara
2′ Superoctave
2′ Spitzgambe
II Mixtur

Pedal
16′ Subbass
8′ Octavbass
5 1/3′ Quintbass
II Mixturbass (4′ + 2′)
16′ Posaune

Coupler
Oberwerk to
Rückpositiv

FISCHINGEN, FORMER ABBEY CHURCH. ORGAN CASE FROM 1763 IN LATE BAROQUE STYLE.
CENTER HAUPTWERK, BOTH WINGS PEDAL, OBERWERK ABOVE.

The two manuals each have the so-called broken octave, that is, the keys C♯, D♯, F♯, and G♯ of the lowest octave are omitted. The compass is C to c^3. The pedal had 22 notes, but it is quite sure that there originally were even fewer.

It required five years to rebuild the instrument. The organ factory Th. Kuhn A. G. of Männedorf, and Hans Biedermann of Amriswil as designer and supervisor, gave their best to resucitate this monument of eighteenth-century Swiss organ building. The manuals were left untouched, while the pedal had to be changed completely since its action had been destroyed and the keyboard was not original. Since the pedal wind chest had to be rebuilt, the experts decided to make an entirely new one with the normal modern compass C to f^1, and, therefore, they provided a new pedalboard with thirty keys. This now enables the organist to play Bach works on this organ as well as the southern German music of that time (Pachelbel, Muffat, et cetera), for which the instrument was originally designed and built. The pipes had to be replaced without exception, the few remaining ones having been used only as examples for the new stops. The stop list is said to represent the southern German school. This may be right, but most organists overlook the fact that the instrument now represents two elements: (1) that which was found on the inscriptions at the console (minus Salicional, Fugara, et cetera, which are known to have been later additions), and is supposed to be original, and (2) the knowledge of the original stop list of the Fischingen organ, which showed certain kinship to Bohemian instruments (as stated above), such as at the Teinkirche at Prague, the old organ of the Prague Cathedral, or St. Niklaus at Olmütz. So it would be safe to say that this instrument is a culmination of both schools, which is unique in this country, and especially worthy of observation and study. The present stop list is as follows:

Oberwerk (Manual II)
8′ Principal
8′ Gedeckt
4′ Octave
4′ Flöte
2 2/3′ Quinte
2′ Octave
1′ Superoctave
IV-V Mixture (1 1/3′)

Rückpositiv (Manual I)
8′ Coppel
4′ Principal
4′ Spitzflöte
2′ Flöte
1 1/3′ Superquinte
III-IV Cymbel (1′)

Pedal
16′ Subbass
8′ Flötbass
4′ Choralbass
II Mixture (2′ + 1′)
8′ Fagott

World War II and its attendant shortage of materials prevented the rededication at an earlier date, so it did not take place until five years after the decision had been taken to restore this organ. On July 4, 1943 the first recital was played in the spacious church with its brilliant acoustics and heard by a grateful audience which filled every seat. As a curiosity for organists and other visitors the original blower, which required five strong men for its operation, was left on the gallery, a new little electric blower having been installed in a hidden corner.

In the same year that the instrument at St. Katharinenthal was completed (1736) Bommer was called to Fischingen to restore there a small organ standing on the rood screen of the church, which had been built in 1687. This organ prabably had been constructed by Matthäus Abbrederis in 1690 at the same time that he built the large organ on the west gallery. Bommer removed the instrument to the Choir and added some stops, rebuilding some defective pipes. The contract was signed on June 23, 1736, and required that the work should be finished in time for the Carneval in 1737; otherwise there would

GERMAN TRIEBWERK, BOTH WINGS PEDAL, OBERWERK ABOVE.

be drastic reduction in the contract price of 150 florins. Bommer finally received 205 florins (and a large cheese as a bonus!) which clearly indicates that there were more parts to be restored than he had thought before undertaking the work. I do not think it wrong to guess that in 1737 this little organ was practically a new instrument with Bommer's own personal character. The stop list was this:

Manual
8′ Spitzflöte
4′ Principaloktav
4′ Holzoktav
2 2/3′ Quinte
2′ Superoktav
1 1/3′ Quintlein
IV Mixtur (1′)
III Cymbel (1′)

Pedal
16′ Subbass
8′ Holzoktav

Coupler
Manual to Pedal

In 1741, after the completion of the little organ for St. Katharinenthal, Bommer was again called to Fischingen. A new contract for work on the main organ on the west gallery required him to replace a wind chest, build a new Cymbel, to change parts of the action, and to add the four missing keys to the broken octave, besides tuning and revoicing the entire instrument before Easter, 1742. For all of this work he received 332 florins. In these repairs and alterations to the main organ he may also have included some operation on the small instrument in the Choir.

The main organ had originally been made by an unknown organ builder in 1611. After the new church had been dedicated in 1685 the old organ was placed on the west gallery, but it was in such bad condition by 1690 that repairs were absolutely necessary. On March 1 of that year the convent signed a contract with the Austrian organ builder Matthäus Abbrederis of Rankweil. He was required to examine the instrument and to replace destroyed parts. We are most fortunate to have the specification of the organ as it appeared in 1690. About fifty per cent of the pipes were new, as was the wind chest of the Pedal organ. Before 1690 this section contained only the "full notes" (C major scale). Abbrederis added the chromatic keys that were still missing, except the four in the lowest (broken) octave. The 1690 stop list:

Manual
8′ Principal
8′ Coppel
4′ Octave
4′ Principalflöte
2 2/3′ Quinte
2′ Superoctave
II Hörnli (1 1/3′)
IV Mixtur (2′)
Pedal
16′ Subbass
8′ ---------
5 1/3′ Quintbass
4′ Octave
III Mixtur (2′)
8′ Trompete

In the years 1760 to 1763 Michael Beer (member of the famous Austrian family of architects — Katharinenthal is his work) built an addition to the church, the so-called "Oberer Chor" (upper choir). This part was intended for the monks, so the stalls and the organ were placed there. In most of the churches where the space in front of the altar is too small the monks' choir has to be placed behind the altar. In this case it is placed upon the first floor, while underneath there is a vestry. Now the church was much bigger and therefore required a larger organ. The little instrument of master Bommer's was no more used in the lower choir; what better plan could possibly be suggested than to combine these two parts in order to have one big organ? Johann Georg Aichgasser removed the two instruments (today the west gallery is empty, as well as the lower choir) from their old positions, built a new case and re-erected the action and the pipe work. The 1763 contract is preserved. It is a very interesting document telling many details

about the daily life of the master and his servants. The cost was 2100 florins, including the cost of seven additional stops. This new organ was an ideal synthesis which Bommer surely would have suggested twenty years before if there had been space enough for such a large instrument. Aichgasser created something new, but without the previous elements from Bommer's work shop it would have looked quite different. This is the stop list:

Hauptwerk (Manual I)
8′ Principal
8′ Coppel
8′ Gamba
4′ Octave
4′ Principalflöte
4′ Flöte
2 2/3′ Quinte
2′ Superoctave
II Hörnli (1 1/3′)
V Cornett (4′)
IV Mixtur (2′)
IV Cymbel (1′)

Oberwerk (Manual II)
8′ Principal
8′ Spitzflöte
8′ Salicional
4′ Principal
4′ Holzoctave
4′ Dulzianflöte
2 2/3′ Quinte
2′ Superoctave
2′ Flageolett
IV Mixtur (1 1/3′)
III Cymbel (1′)
8′ Fagott
8′ Vox Humana
Tremulant

Pedal
16′ Bourdon (new tin stop, open, in case)
16′ Subbass
8′ Holzoctave
8′ Bourdon
5 1/3′ Quintbass
4′ Octave
2′ Superoctave
III Mixtur (2′)
8′ Trompete

The organ remained in this state until 1914. In the meantime there were always organists or parsons who wanted to change the instrument, adding the latest fads of their respective time. We must say that it was fortunate that they had no money with which to realize their ambitions, and this is the reason why in the present day instrument, although it has been changed some, the organ of 1763 is still predominant. When portions of the church were altered to a classic style in 1883 the color of the organ case was also changed. Instead of bright white and gold it is now painted in a dull brown tone. Those people no longer felt the gaiety of the baroque epoch, but they wanted to express a certain rationalistic dignity, which was represented in solemn and dignified colors. It is a great consolation that they did not touch the wonderful tin pipes in the case (82% tin, 18% lead), which are still bijous of this now quite damaged case. In 1886 and 1887 a few parts were repaired but nothing was changed.

1914 was the fate not only for Europe, but also for the Fischingen organ. The community to which the church had belonged since the secularization of the convent in 1848 finally had money enough to change and repair the organ. The condition of the instrument required that the slider chests and action should be replaced, although the pipe work was still very good. But in those years, when European organ building reached its lowest level, none built that type of wind chest any more. The so-called "cone chest," combined with pneumatic action, was in vogue at that time. The Mayer brothers, organ builders of Feldkirch, Austria, and Buchs, of Switzerland, were selected to do the work at Fischingen. This factory was preferred to a Swiss firm since their prices were much lower, but, unfortunately, the quality of their material and workmanship were also lower. In addition to a new pneumatic console, which was adequate for the new wind chests, a third manual (Swell) was added, and the stop list was partly modified in accordance with the then current taste. When World War I broke out, the organ builders had to join the armies and left their work unfinished. No wonder that only a few years afterwards the troubles appeared and increased through the years. Today only a small portion of the

organ is still sounding, and the organist never knows when even this part will stop working. The actual stop list is the following, showing the changes that were made in the pipe work of 1763:

Manual I
16′ Bourdon
8′ Principal
8′ Coppel
8′ Piffaro
8′ Gamba
8′ Salicional
4′ Octave
4′ Flöte
4′ Bassetli
2 2/3′ Quinte
2′ Octave
II Hörnli (1 1/3′)
V Cornett (8′)
IV Mixtur (2′)
IV Cimbel (1′)
8′ Trompete

Manual II
8′ Coppel
8′ Flauto amabile
8′ Aeoline
4′ Flöte
2 2/3′ Quintflöte
2′ Octave
2′ Flageolett
IV Mixtur (1 1/3′)
4′ Trompete

Manual III (Swell)
8′ Flöteprincipal
8′ Quintatön
8′ Nachthorn
8′ Viola
8′ Vox coelestis
4′ Praestant
4′ Flöte
2 2/3′ Nasard
2′ Pfiffle
8′ Trompete
8′ Vox Humana

Pedal
16′ Principal (the former 16′ Bourdon)
16′ Subbass
16′ Violon
16′ Fernbass
10 2/3′ Quintbass
8′ Octave
8′ Cello
4′ Octave
III Mixtur (2′)
16′ Posaune

The community of Fischingen hopes to restore the organ in the very near future. There are two projects: (1) that of the Swiss Society for the Restoration and Preservation of Old Monuments of Art, which wants to go back to the exact instrument of 1763 by rebuilding the slider chests and mechanical action, as well as the now missing former stops (which in my humble opinion is the best way), and (2) a project of the local organist, which I am going to quote here too. He, also, would like to have slider chests again, but would combine them with electric action. He does not want to lose the Swell, and, therefore, his project is this one (it is easy to see which stops will be new):

Manual I
16′ Principal
16′ Quintatön
8′ Principal
8′ Coppel
8′ Gemshorn
4′ Octave
4′ Flöte
2 2/3′ Quinte
2′ Octave
V Mixtur (1′)
III Zimbel (1/2′)
V Cornett (8′)
8′ Trompete

Manual II
8′ Coppel
8′ Quintatön
4′ Principal
4′ Flöte
2′ Octave
2′ Flageolet
1 1/3′ Quintflöte
II Sesquialtera
III Mixtur (1′)
8′ Regal (the present 8′ Vox Humana)

Manual III (Swell)
8′ Principal
8′ Nachthorn
8′ Salicional
4′ Octave
4′ Flöte
2 2/3′ Nasard
2′ Waldflöte
1 3/5′ Terz
VI Scharf (1 1/3′)
8′ Trompete
4′ Clairon

Pedal
32′ Subbass
16′ Principal
16′ Subbass
16′ Eng Gedeckt
8′ Praestant
8′ Gedeckt
8′ Spillpfeife
4′ Choralbass
2′ Rohrflöte
III Mixtur (2′)
16′ Posaune
8′ Trompete
4′ Zinke

All stops would speak independently; there would be no borrows or extensions.

In both cases the console would be made over like the original console. That is, the

player would face the instrument and would not be hidden behind a huge wooden block, like the present pneumatic console.

The next years will show which plan wins. For someone who has a feeling of responsibility toward an original monument, the first project is the only way, although the second would surely turn out well, too. Let's hope that in a few years' time this organ sounds again as the work of its creator, Johannes Jakob Bommer, to whom we give honor by restoring this instrument.

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A Chant Out of Doors (satbb with cantor, unaccompanied) (Summy)

ORGAN TRANSCRIPTIONS

Cesar Franck — Chorale (from "Prelude, Chorale, and Fugue") (G. Schirmer)
J. S. Bach — Two Arias (from "Passion According to St. John") (Edwin Morris)
1. "It Is Finished"
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SCHÜBLER CHORALE PRELUDES

First of Two Parts

AS a set of six pieces, the Schübler chorale preludes are unsurpassed for variety, color and general audience interest. Bach's inventive genius seems to have been at its peak when he contrived each of these remarkably original pieces, against which the chorale melodies are played, a line at a time, as an obbligato. The melodies are, for the most part, unornamented and stand out boldly, despite the interest and strong character of their accompaniment.

Originally composed as movements in various cantatas, Bach transcribed them as organ pieces at the invitation of the publisher, Johann Georg Schübler. Since so few of his organ works were published in his lifetime, it is of no little interest that he submitted these particular pieces, all transcriptions, when the opportunity arose for him to realize some profit from his energetic and diverse activity as a composer. We may be permitted to draw three inferences from his choice. He evidently considered (1) that these were among his most successful, and therefore most likely to be popular, movements, and (2) that they were unlikely to be frequently performed and heard in their original form, as parts of cantatas which made by no means inconsiderable demand upon chorus, soloists, and various combinations of orchestral instruments, and (3) that they lost little of their effectiveness in being transferred to another medium. His judgment certainly cannot be called into question with respect to the first two points; the first piece of the set seems to raise a slight question about the third point. It is undoubtedly true that Bach, like his contemporaries, thought of musical composition in terms of pure musical ideas, with much less regard for the peculiar characteristics of tonal media than is usual today. This may be regarded as evidence of the then predominant position of the organ, in which the sound of one stop is freely substituted for that of another, in accordance with practical considerations, such as the available resources and acoustic conditions. There was little objection to the substitution of one orchestral instrument for another of the same compass. One instrument's capacities were then more nearly like those of another than is the case today. For instance, the trumpets, because of their shallow mouthpieces, could be played about as fast and nearly as high as the violins. Bach did reserve the jubilant sound of trumpets for festive church cantatas, but this was partly, at least, for the practical reason that the "town pipers" (brass instruments) were only available for church services on high feasts.

It is of especial interest to note that Bach did not consider the speech and tone of organ pipes of his time inferior to that of contemporary orchestral instruments.

Number One, "Wake, a Voice is Calling," is presently the most popular, but this is undoubtedly due to the familiarity which the chorale melody enjoys, as the others are all superior to it in general musical interest. It poses certain problems of interpretation, upon which the choice of tempo depends. Its appearance as an organ trio for two manuals and pedal is deceiving. The sixteenth- and eighth-note figures in the right hand part, together with the short phrases indicated by the slurs (actually Bach's own, among very few in his organ works), seem to suggest that the piece is a vigorous allegro. However, in this case, as in so many of Bach's chorale preludes, a reliable guide to interpretation is the text sung to the chorale melody.

The Advent cantata Number 140, in which the original version of this music occurs, is entirely based upon the Advent hymn which has become familiar in Catherine Winkworth's English translation as, "Wake, awake, for night is flying." Its three verses are sung respectively to an imposing chorale fantasia for full chorus and orchestra, this present movement for chorus of tenors, strings and continuo, and a simple statement for all forces (probably including the congregation). All are based upon the great chorale melody. The words deal with preparation for the "mystic marriage betwixt Christ and the Church" which symbolizes the coming of Christ at Christmas. Placed between main movements are love duets, sung by the Bride and Bridegroom.

The text corroborates the impression created by the music itself in its original version, that the movement is intended to be performed as a slow, majestic bridal procession. The organ arrangement lacks certain notes which contribute to the character of the original: the chords filled in by the harpsichord or organ, or both, from a figured bass. When these chords are played (they are realized, although in some cases inaccurately, in the piano accompaniment found in vocal scores of the cantata) the music assumes a maestoso character which immediately informs us that the movement is *not* a lively allegro, and emphasizes its lyric quality.

In modern music the slurs over notes in the right hand part (and dots in some editions) would imply considerable shortening of the last note in each slurred group, resulting in a strong accent on the following first note. This would produce a nervous, jerky rhythm, and it is doubtful that Bach intended any such thing. The occasional and irregular appearance of slurs in Bach's organ music is difficult to explain, but is probably a reflection of the eagerness with which he adopted the modern technique of violin playing, by means of which groups of notes are played with single continuous bow strokes. Prior to the invention of the modern convex bow, the usual method of bowing stringed instruments was to play every note with a separate bow stroke. Bach wanted to capitalize on the accents, varied articulation, and other advantages of the new method, and began writing slurs above the notes to indicate the bowing. It is possible that he carried the idea over into some of his organ pieces, in which he would be consistently carrying out his known intention of making musical notation more exact, leaving less to the discretion of the performer. In this instance he may have simply copied his violin part into the organ arrangement, including the bowing marks as an indication to the organist that he should make the notes sound as though they were bowed in accordance with the slurs. It should be realized, however, that changing the direction of a violin bow can be instantaneous, and does not necessarily effect a noticeable break in the legato. The last note of one stroke diminishes a little, and the next one begins with fresh momentum after a sometimes negligible interval; there frequently seems to be no cessation of sound. It may be safe to assume that Bach wanted to specify phrasing of this kind here (and in the left hand part of "I Call to Thee," and elsewhere).

The unexpected division of four sixteenths into two pairs by the slurs at the beginning of measure 6 might be accounted for as a means of fitting the notes into successive up and down bow strokes in such a way that the more heavily accented down bow would be applied to the pair of eighth notes on the third beat. This will be seen to result from beginning the last note in measure 4 with a down stroke, and alternating for each single note or slurred group thereafter. Such an explanation, however, depends upon the assumption that Bach *copied* both the notes and slurs from his own string parts.

All of the foregoing seems to support the solemn-dignity concept of the piece, which

cannot be achieved at a tempo faster than 72 quarter-notes a minute; slightly slower tempi are preferable.

This piece also presents another important problem: that of correctly realizing the numerous ornaments. Notwithstanding Bach's purpose of regularizing the use of musical notation and signs for ornaments, as evidenced by his now familiar table of ornaments, he was sometimes inconsistent, and there are some uncertainties despite the excellent rules laid down by our two modern authorities, Ralph Kirkpatrick in his Preface to the *Goldberg Variations*, and Putnam Aldrich in *Ornamentation in J. S. Bach's Organ Works*. These gentlemen are agreed that the dissonant or unessential note should be played first and on the beat (not before it), and stressed throughout the duration of the trill. The appoggiatura is the basic element always, the trill being merely a rapid reiteration of the appoggiatura. This means that the single note ornaments that appear in some editions of this work as acciaccaturas, i.e., modern grace notes (small eighths with lines through them) are all incorrect. They are properly appoggiaturas, occurring on the beat and consuming one-half of the time value of the following essential note. The figure occurring in measure 7, two sixteenths and an eighth, together with its preceding single note ornament, should be played as two thirty-seconds, one sixteenth, and an eighth. Other similar ornaments must be realized in the same way. Even the trill on the second beat in measure 9 may be realized by the addition of only one unwritten note (C), although four sixty-fourth notes (C-B♭-C-B♭) proceeding immediately to A♮, would be preferable. In measure 8 some editions show an ornament over the E♭ which immediately precedes the rest. This is misplaced; the last note in the measure (E♭ an octave higher) should have the ornament, and it should be a slide, i.e., a run up to it from a third below, so that the time of the last eighth in the measure is occupied by two thirty-seconds and a sixteenth (C-D-E♭). In measure 11 the eighth note with the trill should be played as four thirty-seconds (E♭-D-E♭-D), moving right on to the following C with no pause anywhere. In measure 12 the trill on the dotted eighth A♮ is begun with B♭, on the beat and execu-

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ted as six thirty-seconds (B♭-A♮-B♭-A♮-B♭-A♮), leading right into the written-out thirty-second note ending (G-A♮) without any break in the rhythm. All ordinary trills, whether indicated by the letters *tr* or by a jagged pen line, are executed in the same manner; special beginnings and endings are indicated with special signs or notes. The quarter note on the fourth beat of measure 21, left hand part, should be played as eight thirty-seconds (G-F-G-F-G-F-G-F) continuing without pause into the final E♭.

The patterns of these examples may be applied elsewhere throughout the piece, except for the right hand part first note of measure 12, and at the third beat of the next-to-last measure, and the left hand part third beat of measure 20. The first two cases are in some doubt because the rule that an appoggiatura takes half of the time of the following note is variously applied to dotted notes. Some authorities exclude the time of the dot from consideration, others say that the appoggiatura before a dotted note takes all of the time of the essential note except the dot. Either method of playing these two figures is effective, perhaps the second should be given a slight preference. It would make the beginning of measure 12 consist of an eighth note A♮, followed by two sixteenths (G-A♮), leading right up to the first B♭ of the trill. The same rhythmic pattern would result on the third beat of the next-to-the-last measure. It is hard to understand why Bach did not call for a trill on the dotted eighth note on the fourth beat of this measure. It seems to demand it; perhaps Bach knew that players would add one there without his requiring it. I like to play E♭-D three times, as sixty-fourths, followed by C and D, each sixteenths, the last D occupying the time of the dot.

The rule for appoggiaturas seems, if strictly applied in the left hand part of measure 20, to take the sense of climax away from the high note E♭. In this respect it seems to be contrary to the musical logic of the phrase. Perhaps this is one of the rare instances in which the so-called "short appoggiatura," like our modern acciaccatura or "grace note," which precedes the beat and takes its time from the preceding note or rest, was allowable.

In spite of all the "rules" governing ornaments, Bach did not specify nearly as many for violins and violas in his original version as he wrote into the right hand part of his organ arrangement; this reflects the seventeenth- and early eighteenth-century convention of freely introducing ornaments in the performance of keyboard music. Bach may have introduced as many as he did in this piece as a sort of defense against the possibility or probability that performers would add even more! In any event, we may not feel quite the same obligation toward these ornaments as we would in works of which there is no authentic unornamented alternate version.

When an appropriate sounding mezzo-forte combination is available, it is to be preferred to the more common quieter trio combinations. The right hand part might well be played on the Positiv or Swell with an 8′ Gedackt, 4′ Flute, and a mixture, perhaps adding a 2′ element also, or substituting a 4′ Octave for the 4′ Flute. The resources of each instrument vary so widely that individual taste is required for an effective choice, of which the main object should be to achieve a bright, full sound comparable to the full strings of the orchestra. The chief characteristic of this sound, it might well be observed, is the predominance of components above the unison due to their superior strength in the tone of stringed instruments. The left hand part should be played on the Great with an 8′ Principal, 4′ Octave, and a mixture, a full-voiced Cornet, if available. This sound should be more foundational and solid, but brilliant in a different color from that of the right hand combination. A pedal combination of 16′, 8′ and 4′ Flutes, or equivalent, should suffice. If the pedal organ lacks independent stops of the right sound and strength, couple them down from a third manual.

The foregoing is an ideal combination for this piece. When it cannot be worked out effectively, the usual 8′ and 4′ Flutes in the right hand part may accompany any solo reed in the left hand; a Trompete (not too loud) or Krummhorn, or even an Hautbois, Clarinet or English Horn can be used, if in balance with a suitable accompaniment. On some organs an 8′ Principal, or 8′ Principal and 4′ Octave, will make the chorale melody stand out well.

Number Two, "Whither Shall I Flee," is taken from an unknown cantata, of which there is apparently neither score nor parts in existence. However, the words of the hymn are well known, and the first verse provides an explanation of the music, which seems to be a clear musical illustration of their meaning. The sequential and imitative reiteration of quick, nervous, little phrases, the frequent changes of direction, and inversion, seem to convey a mild feeling of frustration, of not knowing which way to turn.

Bach himself provided directions for the registration; Pedal 4′, left hand 16′, right hand 8′. For the chorale melody in the pedal any light reed at 4′ pitch may be used, a Krummhorn, Schalmei or Trompete (Clarion) being preferable, which ever is in good balance with the manual stops chosen. For the left hand, which is the bass, a Quintadena or Gamba should provide the 16′ line; a Bourdon is usually too ponderous for such a rapid movement. A light 8′ or 4′ stop may be combined with the 16′. The right hand needs the spritely sound of 8′ and 2′ Flutes, such as an 8′ Gedackt and a 2′ Blockflöte. Some such combination can usually be found in any organ.

This piece was at least once registered effectively in just the opposite way, i.e., a 16′ reed (Dulzian) in the left hand, an 8′ reed (Hautbois) in the right hand, and a 4′ Choralbass in the pedal. Few organs of the present day contain exactly the right elements for this combination. However, the 4′ Choralbass will nearly always sound well in such pedal solos as this, even with the manual combination described above.

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Both manual parts are replete with melodic interest which can be heard and understood by the listener if the beginning of each phrase is set apart from the preceding one by a break in the legato. The first phrase in the right hand part, immediately repeated by the left hand, is the basic melodic element. An eight note pattern, consisting of seven sixteenths, beginning with the second of the group, and ending with either a sixteenth or an eighth on the beat, is inverted in the second measure, and appears in one form or another in all thirty-three measures, sixty-two times in all.

The next most prominent figure is the three note melodic cadence at the end of the first measure right hand part, E-D♯-E, which occurs fourteen times. It should always be played legato, well separated from the preceding phrase, and as much as possible from the following phrase.

Again the characteristic melodic cadence occurring first in the left hand part at the beginning of measure 5, involving a downward leap of a seventh, E-F♯-D♯-E, appears six times. It, too, should be well separated from the preceding and following phrases. The dissonant progressions, i.e., from and to notes that would be dissonant if sounded together, such as the downward leap of the seventh and the upward step of a second, should be played in strict legato, while the consonant progression, the upward leaping sixth, should be well detached in non-legato. The effect will be as though the second and fourth eighth notes were slurred to their successors. This heightens the rhythmic and melodic interest by making the notes between the beats more prominent whenever this cadence occurs. This effect is especially good when, as in measure 5, it is followed immediately by the suspended first note of the other melodic cadence.

Another figure that occurs six times is that which begins with the syncopated G in the right hand part of measure 7, followed by three notes. Always give syncopated notes a firm attack by markedly shortening their predecessors (as in the left hand part, measures 15, 16, 17, and the three notes beginning with G in measure 27).

The combined cadence at the beginning of measure 6, just before the pedal entry, should be phrased, in the right hand part, like the melodic cadence which has the downward leap of the seventh, which it resembles, with the second and fourth eight notes legato. The left hand phrases will conform to the right, the first phrase comprising the two sixteenths and eighth, the second phrase only two notes, the eighth an octave lower, moving up a fourth in legato. Substantially the same cadence recurs in measures 14 and 24 and at the end.

Phrasing for the few remaining notes which are not included in the basic melodic elements already mentioned, most of which are eighth notes, may be in accordance with general principles. These include the non-legato execution of octave leaps, the use of legato for the upward leap of a fourth, this frequently being the beginning of a phrase pattern (measures 3, 4, 11, 12, 21, 22, 30 and 31 in the left hand part); leaps along chordal lines are usually detached. Some might prefer to play all eighth notes in non-legato. This imparts rhythmic vitality, but it may detract from melodic interest if the phrase patterns are not clear at the same time. On organs whose action and voicing permit fine control of both attack and release it will be possible to combine both methods and play with distinctly separated phrases, while making the notes within each phrase *not quite* legato, with just a hair's breath of silence between them in the case of sixteenth notes.

Care should be taken that non-legato notes are shortened rhythmically. The abbreviated eighth notes should be made to sound for half of their full value, as a sixteenth followed by a sixteenth rest. In no case should a note be shortened so much as to give the impression of breathlessness or abruptness. In summary, I recommend the use of three different touches in this piece: absolute legato, in which each note seems to flow out of the preceding one, in which each note lasts until the exact moment at which the next one begins (*but never longer*); non-legato, in which notes are cut in half and followed by an equal period of silence; and *almost* legato, which makes notes sound as if they occupy all of their time, but gives each one its own attack by means of an almost imperceptible preceding silence.

Except for repeated notes, which should be cut in half, the pedal solos should be played legato. The last note of each line must not be permitted to trespass on the following rest.

When played with a colorful, clear combination in a steady rhythm, with distinct phrasing, this piece is eminently satisfactory both to play and to hear. It is enjoyable because of its own intrinsic virtues, and its effectiveness is by no means dependent upon any "program" or title, such as the text of the hymn affords. And the composer's skill, as revealed by the above analysis, has special significance for us in determining the manner and details of our performance, but it is of no consequence to our audiences. All that matters to them is that we deliver each melodic figure, each rhythmic pattern, and each harmonic progression, in a clearly recognizable and most impressive manner, so as to reveal the shape, form, and emphasis of each. The *effect*, rather than the means of achieving it, should be in our minds during a performance.

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ARTHUR E. HALL

IMPROVISATION

THE progress of mankind might be traced by a measure of his desire for self-expression and his success in conveying or projecting his ideas. To the musician there is available a very special means of achieving this through a language that has power to communicate a wide variety of thought, and which can arouse a particular response in the listener. Most musicians are concerned with the reproduction of the thought some other person (the composer) has written down. But who has not had the desire to express himself in his own terms, if only for his own satisfaction? And who has not been discouraged by the prospect of the long, arduous task of notation? Who, when attempting the task has not lost the thread of thought in trying to surmount the technical difficulties involved in committing thought to paper? Much of this frustration can be eliminated by sounding ideas directly at the keyboard, by improvisation.

This act is not as unpremeditated as the term seems to imply, but if we give careful consideration to the musical materials involved it can still become a delightfully spontaneous adventure to both the creator and the listener. We can describe these materials as first, Ways and Means; second, Form and Texture; third, Color and Intensity. By a little real thought and consideration of these elements we should be able to obtain quite satisfactory results. Let us first examine the ways and means.

The most successful commercial efforts in the field of improvisation are found in the work of the jazz players in America, in a jam session. What is their choice of procedure? What basic means do they employ? Do they not first select a composition known to all players, upon which to base their exploration? Like all pieces, this composition contains a well ordered sequence of harmonies as well as a melodic line. Their ornamentation turns out to be chiefly melodic and rhythmic. Indication of what an influence these alterations can affect is evident in the transformation of the second theme of the Symphony in B minor by Schubert, when it received popular song treatment. Witness what happened to the Greig piano concerto; Mozart's C major piano sonata; a Chopin Ballade, and many other examples. These are mentioned to show what can be done with (or to) a basic harmonic and melodic outline. You will proceed in the same manner, except that you will create your own well-ordered sequence of harmonies, and your own melodic line. These, and your imagination, are your means.

The number of ways in which this material can be used, if expressed numerically, would be astronomical. There is no limit to the number of rhythmic, metric, melodic, harmonic, contrapuntal, and tempo variations at your disposal. Your knowledge and creative capacities are your only limits.

When you have established your ways and means your next thought will be a decision as to the length of your piece. You will need a suitable form in which to cast it. There are many of varying lengths and characteristics at your disposal. Choose one that you think fits the material you have selected, or invent one for yourself. (Obviously, other people have!) Form will influence texture. You will certainly not have the same texture for a March that you would use for a Scherzo, or a Prelude, or a Fugue, nor would a Minuet be like a hymn tune. These forms suggest their own characteristic structure and figures.

Color and intensity are still to be considered. Both of these elements require a good

sense of balance and variety. They will probably be the last features under consideration, as the necessity for contrast will not be felt until the piece is in progress. To some extent your choice of form will dictate a solution to this problem. Obviously a Brahms chorale will be very different from a Bach fugue in color and intensity as well as in other aspects. As you become more facile in the other departments, your concept of color and design will sharpen, as well as your concept of dynamic range (intensity).

Now that you are ready to start you may become aware of something lacking in your own equipment. That something is a harmonic and melodic vocabulary at the keyboard. You are no longer seeing a chart of musical sounds which you are to reproduce, you must create these in your own mind before you play. At first this seems to be a startling and unsettling thought. You must realize that you are using a new means of expression. The process can be compared to that of reading compared to speaking. When you read you absorb thoughts, but when you speak you create them. Improvisation is a process of *creation*, whereas reading music is a process of absorption and *re-creation*. Therefore, facility will depend on your ability to use the elements of the language freely, at the keyboard.

Some exercises for the development of keyboard facility may be found in the strict four-part working out of figured basses at the keyboard. Any harmony book contains many such. Take a simple one and transpose it into all keys. Don't neglect the minor keys with their various scales. Another good workout will be found in the harmonization of plainsong, with nothing but root position triads and their first inversions. Use a vocal score for this, with only the melody for guidance. These excercises will improve your harmony, but don't forget one can *never* satisfy the demand for melody and rhythm. Play, write, hum or just *think* hundreds of melodies, thousands of them! Build them from little motifs, extend the figuration, feel the cadence, prolong, shorten, do anything to maintain interest.

Facility will come as the result of practice, just as one develops command of a language. Progress will be as fast as that attained by spending an equal amount of time on any other language. This may seem a discouraging thought at first, but who ever heard of a really competent person who is unable to express himself in the language of his chosen field of activity? The tradition of the organ is so closely allied with the art of improvisation that it is almost inseparable from the vocation. As organists we should consider improvisation an essential part of our training. Even if we never reach the glorious heights of some of the past and present masters, we may contribute our share towards the maintenance of a grand tradition.

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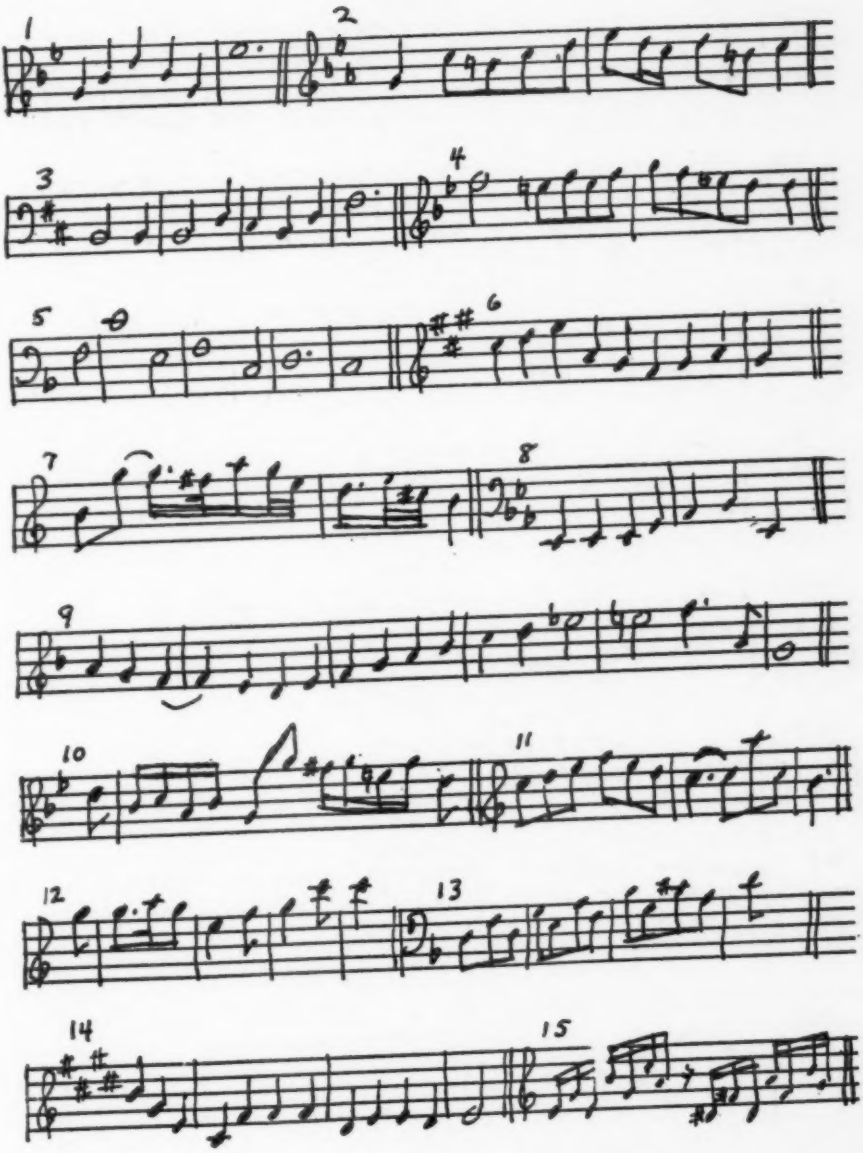
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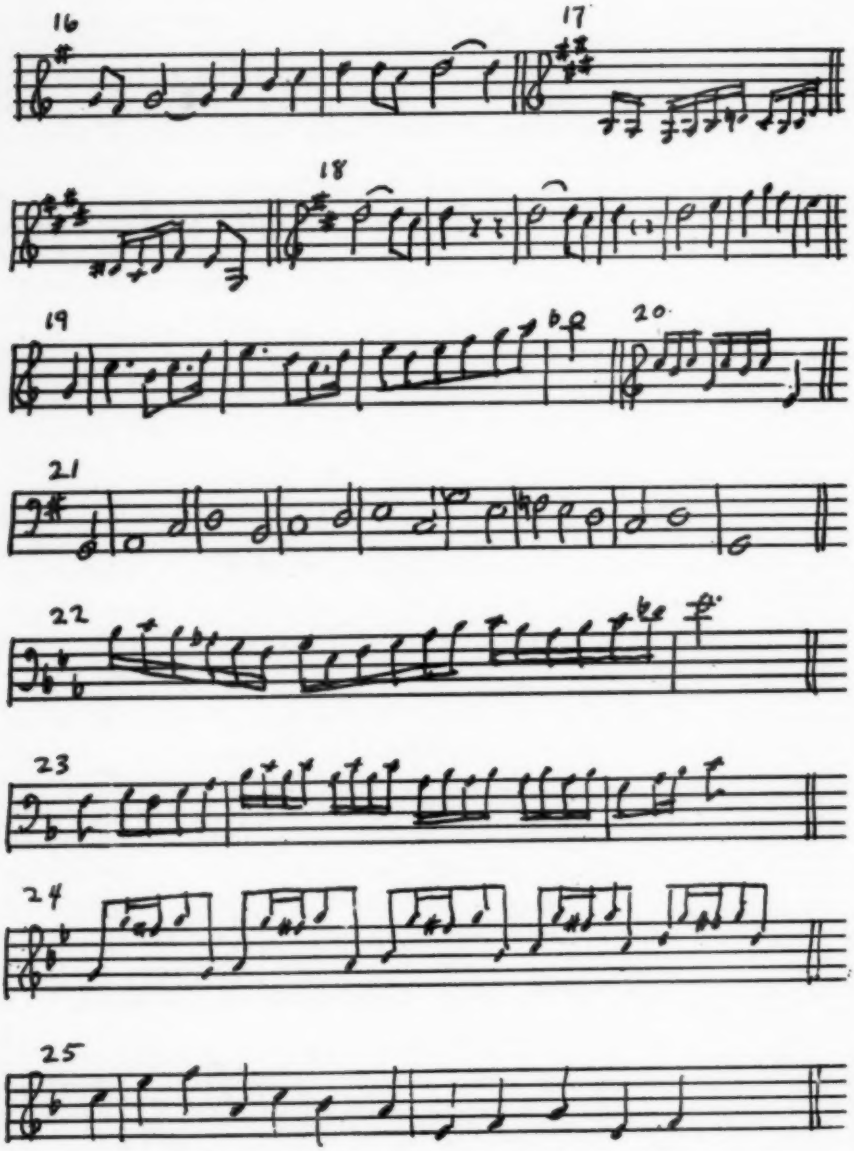
CONTEST

Read everything on this page carefully.

RULES

Contestants will attempt to identify correctly the musical themes and fragments appearing on pages 57 and 58 of this issue, and a second set which will be published in the Spring issue. All of these items have been extracted from organ compositions of various periods and schools or other well-known pieces of music that are among the most frequently performed in their respective categories. List them in numbered order by composer, title, movement (if necessary), and measure or section. (If the theme appears more than once exactly as quoted, indicate the measure of its earliest appearance.) Identification of the first set of themes and fragments must be mailed to the Organ Institute and postmarked not later than March 9, 1955. The second set must be postmarked not later than May 9, 1955. A complete list of correct answers has been filed in a safety deposit box and will be available to the judges only. The decision of the judges will be final. The judges reserve the right to withold the first prize if no contestant receives a sufficiently high score.

In the event of a tie, a third set of themes will be mailed to the tied contestants as soon as possible after the final date for receipt of the second set. If this should fail to break the tie, then (and then only) the earliest date of receipt of all three sets of answers will be taken into account to determine the winner.

PRIZES

First Prize, $400. If the winner chooses to accept this prize as part payment of his expenses on the Organ Institute tour of European organs, described on page 9, it will be increased to $500.

Bonus Prizes. If the winning contestant obtains *new* subscriptions to the *Organ Institute Quarterly*, prior to the contest closing date, totaling five years or more (as one three-year subscripiton, and two one-year subscriptions) the First Prize if awarded to him will be increased by $25.00. Additional bonuses of $25.00 will be added to the First Prize for each additional five years of *new* subscriptions obtained by the contestant (provided these subscriptions, together with payment for them, accompany answers) up to the amount of $100, representing twenty years of *new* subscriptions, and making the total First Prize $500. If the First Prize and bonus are accepted as payment of expenses on the Organ Institute tour of European organs, bonuses awarded for *new* subscriptions, as described above, will be $100 for each five years subscriptions sent in with the first set of answers, and $100 for each five years subscriptions accompanying the second set of answers, with the further provision that if ten years or more of *new* subscriptions have accompanied the first set of answers and ten years or more of *new* subscriptions accompanies the second set of answers, the bonus for the last five years subscriptions, which brings the total subscriptions to twenty years or more, will be $165, this making the total First Prize and bonuses award $965, the exact cost of the all-expense Organ Institute tour of European organs. The bonus awards will not be made for more than twenty years new subscriptions in any case.

Second Prize, $100. If the winner chooses to accept this prize as part payment of his expenses in attending the 1955 Summer Session of the Organ Institute it will be increased to $150.

Bonus Prizes. If the contestant obtains five years or more *new* subscriptions to the *Organ Institute Quarterly*, a bonus of $5.00 will be added to the Second Prize under the same terms and conditions as outlined about under the First Prize Bonus, up to the amount of $20.00, representing twenty years or more of *new* subscriptions. If the second prize and bonuses are accepted as payment of expenses in attending the 1955 Summer Session of the Organ Institute the bonuses will be increased to $10.00. If two five-years of *new* subscriptions are mailed in on each of the two dates as described above for the maximum First Prize Bonus, the award for the final five-years of new subscriptions will be $20.00, making the total Second Prize and Bonus $200.00, enough to pay all expenses at the Organ Institute Summer Session. Here, as above, bonuses will not be paid for more than twenty years of *new* subscriptions.

Third Prizes, $25.00 each.

Bonuses will be $5.00 for each five years of *new* subscriptions, as described above up to a total of twenty years or $20.00.

SUBSCRIPTION RATES: ONE YEAR, $2.00, THREE YEARS, $5.00.

TO QUALIFY FOR BONUS PRIZES ALL NEW SUBSCRIPTIONS MUST ACCOMPANY ANSWERS.

Note above the special advantages of sending in new subscriptions with first set of answers.

.....

I have read carefully and understand all of the above rules and conditions and accept them completely and finally. I wish to enter the contest and enclose my typed (or printed) identification of the twenty-five themes and fragments published in the Winter, 1955 issue of the *Organ Institute Quarterly*.

I enclose names and addresses of ..... new subscribers to the *Organ Institute Quarterly*, (indicating length of each subscription), their subscriptions totaling ..... years, and also enclose $..... in payment for them.

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The Organ Institute is a non-profit corporation organized to advance the cause of organs and organ music, and to develop interest in them. Its program consists of disseminating knowledge of organ music of every school and period, and also making the organ profession acquainted with the wide range of diversity to be found in organs of various times and countries. Specialization in the music or instruments of any single period or style has been avoided, there being so many different kinds of great music and beautiful organs.

Development of the modern organ and of contemporary organ culture to the highest level of musical excellence, is the primary purpose of the Organ Institute. To this end courses of instruction by concert artists are offered at Summer Sessions (see pages 2-4), technical articles are published in this magazine, and public concerts are presented. This year, also, arrangements have been made for a group of American organists to examine and play the finest organs in Europe both old and new, under Organ Institute auspices (see page 9).

Each year several talented and worthy young musicians are enabled to take advantage of Organ Institute instruction by means of a scholarship grant from funds contributed for this purpose by the Associates of the Organ Institute. Any contribution, however large or small, automatically makes the donor an Associate. Contributions to this fund are earnestly solicited from all who are in sympathy with the purposes of the Organ Institute, and who would like to help a deserving young musician.

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